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PREFACE.

THE Editors have again to thank their supporters and contributors for their active co-operation in promoting the welfare of 'The Naturalist,' and in making it worthy of its position as one of the oldest natural history journals in the kingdom, dating back, as it does, to the year 1833.

They are pleased to note yet again the active assistance of their Lincolnshire friends, and are glad to know that in the future, increased attention is to be paid to other counties—including Derbyshire and Nottinghamshire, neither of which counties have of late years bulked so largely in scientific literature, compared with their neighbours, as could be wished.

The Editors would repeat the expression of their desire to receive more papers on geology, and upon biological and general phenomena of animal and vegetable life, and they trust that friends who desire to see such papers inserted, will bear in mind that they will always have a favourable reception, provided they embody the results of original work and practical investigation.

THE NATURALIST
For 1897.

THE POSITION OF ANNUAL FLOWERING PLANTS.

ALBERT HENRY PAWSON, F.L.S.,

Farnley, Leeds; President of the Botanical Section of the Yorkshire Naturalists' Union.

AMONG the many problems which offer themselves to the observer of vegetable life, the question of duration is not the least interesting. Why, when most plants live for several or many years, do a few of them exhaust themselves in two summers, while a large number run their whole course between spring and the succeeding autumn?

One would suppose that there would be no place in the world for these monocarps, which perish as soon as they have ripened their seed, and every year must seek a new habitation on this already overcrowded globe. How does it happen, in the fierce competition which rages unceasingly among all forms of vegetation, that those which each year voluntarily abandon their sure footing on the earth are not soon jostled out of existence altogether? What spot is there vacant on which they can hope that their offspring may establish themselves?

Beati possidentes! This seems to be the maxim of our native herbs. The grasses teach this lesson, for in our latitude they seem to inhabit the earth. They are ever green and spreading; they contrive to endure the rigour of the winter and do not die down into the ground, like most of their fellows, but grow until the last breath of autumn is past. They take advantage of any warm spell of weather among the frosts to strengthen their position, and they are above ground and ready at the first approach of spring, while most other herbs are still sleeping.

But even the perennial plants which disappear under ground during the winter still possess their stations. As soon as the warmth of the season calls them into life again they throw up vigorous growth from their established root-stocks and usually quite overpower any seedlings which may be attempting a settlement.

According to the doctrine of the survival of the fittest, the doom of annual plants would seem to be near. Biennial plants evidently do not occupy a much better position, for although they hold their ground for two years they produce seed but once. The other so-called monocarpic plants of tropical countries, not annual or biennial, as the Banana and the American Aloe, seem to me to be misnamed, for although they apparently perish after flowering, they usually give out suckers from the root and so enter upon a new existence on the same spot.

If we turn to the species themselves and examine the ordinary conditions of life of the annuals of our own flora, we find that they do not as a matter of fact occupy the same ground as the perennials. They are the outcasts, the plants of waste ground, of dry and barren places, of rocks and sandy shores, of water-margins, of any spot where the rivalry of the true possessors of the soil is less keen. Seeding abundantly and growing rapidly, they are always the first to seize any newly-exposed soil, but they do not long retain their conquest. A heap of road-scrapings by the wayside is occupied at first by a gay crop of poppies and charlock and scentless mayweed, with groundsel, goosefoot, and fumitory, but the docks have got foothold before autumn, and the creeping-thistle, and in two years more they and the grasses share it between them. If a turf is taken from the sward, chickweed and annual speedwells and lady's mantle may revel on the bare spot for a season, but the grass soon recovers its inheritance. Crumbling banks, where a fresh surface is often exposed, are a great resort of foxgloves; they maintain themselves with difficulty at a hedge bottom. Some annuals get their living as a snatch-crop on wall tops and dry rocks in the spring before the heat of summer begins, as *Saxifraga tridactylites*, *Draba verna*, and some short-lived grasses. The seedlings are up and in flower before the snow is well off the ground, and by the time the stones have become too parched to support any but the lowest forms of vegetation, they have sown their seeds and withered away.

A large number of our annuals seem to be as dependent on man as the common mouse or the house-sparrow. He is always disturbing the ground and making room for them, and they follow him assiduously. How else could they live? Sir J. D. Hooker observes in the preface to his *Flora*, 'Few who have not gone into the subject have an idea how many plants would disappear from our Flora were the soil left undisturbed by man and the lower animals which he rears.' What would the charlock do without the corn-fields, or the groundsel outside a garden, or the shepherd's purse missing the waysides? The aliens and colonists would be forced to

return home ; the little speedwells and geraniums would be sent back to the rocks ; the clans *Lamium*, *Galeopsis*, and *Fumaria* would disappear, and the strong tribes *Chenopodium*, *Atriplex*, and *Polygonum* would lose half their numbers.

Of nettles we have two common species, one perennial and one annual. The perennial plant grows strongly amongst other vegetation wherever it establishes itself, while the annual (*Urtica urens*) exists only on sufferance in cornfields and on roadsides near to villages. Of dog's mercury also we have two sorts. The perennial is one of the most aggressive plants in our flora, often in shady positions destroying all other herbage ; the annual, although it grows large and branching, can survive only in cultivated ground.

I was led by these reflections to examine the list of our British plants to see more exactly what position the annuals and biennials hold among their fellows. The number of our flowering plants may be taken at 1,800 species, which is probably as many as would be allowed by most botanists. Some 300 of these are annual, and about 60 biennial : a fifth of the whole, therefore, is monocarpic. Of the 300 annuals, at least 70 are practically confined to cornfields and cultivated ground (this list includes most of the aliens and colonists) ; 20 are sea-shore plants or inhabiting brackish mud-flats ; 30 grow in fresh water, in wet places, and on the margin of pools ; while more than 100 are chiefly found on rocks, walls, waste places and waysides, and on dry sandy ground ; nearly 20 more are parasites, feeding on perennial plants.

Of the 50 or 60 species which remain, and which form an inconsiderable part of our flora, some are very uncommon, and there are very few indeed which can be found ordinarily growing in perennial herbage. Among these, *Linum catharticum* is conspicuous, and the three annual gentians and the nearly-allied common centaury. These are all found in pastures where the ground is well covered by grasses. Their roots are small, and their position is similar to that of the semi-parasitic *Euphrasia*. Can these be also dependent on perennials ?

The annual vetches and *Corydalis claviculata* and *Galium aparine* do not shun crowded ground ; they choose bushy places and spring up in the dark among briars and brambles ; by means of tendrils or hooks they climb out into the sunshine, and thus flourish where most vegetation would be choked.

Biennial herbs link together the annual and the perennial, for some of them, if they are sown early, will often flower and die in the same year ; yet others will occasionally, as the foxglove, by means of offsets, prolong their life beyond two years. Again,

there are annual plants which, springing up late in the year, or otherwise hindered from flowering, may, as *Jasione*, assume a biennial character.

The greater number of biennials also are plants of waste, stony, or very dry ground, as *Glaucium*, *Draba*, *Arabis*, *Cheiranthus*, *Brassica oleracea*, *Reseda*, *Hyoscyamus*, *Solanum nigrum*, *Digitalis*, *Verbascum*, *Echium*, *Cynoglossum*, and others; but there are many which seem to be able to hold their own pretty well among the perennials. Some of the umbellifers do this, as *Chærophyllum temulum*, *Heracleum*, and *Anthriscus sylvestris*. The thistles too, and notably the burdock, are not easily crushed out. These, however, cover so much ground with their crown of leaves, that when they die away they leave a bare spot, which their seedlings often seize upon. It is noticeable that many biennials have this habit: it is an advantage which annuals, being usually smaller, do not possess.

It seems probable that if our country were to become uninhabited, a great change would soon take place in our flora. The cornfield weeds would at once be extinguished, for the perennial plants would not delay to take possession of these choice lands; the walls and ruins would be left to the rock plants, and some of the wayside annuals might still obtain a share of the roads and stony tracks, but they would no longer flourish in their present profusion. Indeed, there can be no doubt that a large proportion of our monocarpic plants would disappear entirely, while a still greater number would be driven into the inhospitable situations which are their natural home.

NOTES—BOTANY.

Anthemis nobilis L. in North Lancashire.—Mr. William Duckworth writes to me that in July 1892 or 1893, he found *Anthemis nobilis* on the roadside near Kirkhead, a headland near Kent's Bank. A solitary plant in such a place is, of course, merely adventive, and in this Mr. Duckworth agrees. Anyway, in our district the species has so far no good hold. The locality given above is a roadside with which I am well acquainted, and I have seen no example since 1893. No stress therefore must be put on the record. Has any lucky botanist found *Anthemis* in the Cartmel area? If so, will he kindly come to our aid?—S. L. PETTY, Ulverston, November 14th, 1896.

Anthemis anglica on the Yorkshire Coast.—When at Filey last June, I found this plant growing on the cliffs near Gristhorpe; and also, in a similar situation, at the extreme point of Flamborough Head. Its position in these places—especially at Flamborough, where it was difficult to reach it from the cliff top—proves conclusively, to my mind, that it is no garden escape, or of recent introduction, but grows naturally in these localities. I say this because I see, in some botanical works, it is thought not to be truly wild. Whether it is a distinct form, or only a variety of *A. arvensis*—which I hear from my friend, the Rev. W. Fowler, of Liversedge, that Hooker and others consider it to be—I leave to botanists to decide.—F. M. BURTON, Highfield, Gainsborough, Nov. 27th, 1896.

ON THE HEPATICÆ AND MUSCI OF WESTMORLAND.

GEORGE STABLER,
Levens, Milnthorpe, Westmorland.

FOURTH PAPER.

(*For Third Paper, see* '*The Naturalist*,' *September* 1896, *p.* 277.)

121. **Barbula spadicea** Mitten. *Trichostomum rigidulum* (non Hedw.) Sm. The Force, Levens (Barnes, 1869); Levens Park, by the river (1885); Hawes Bridge and Longsleddale (Binstead, 1885). [On wet rocks, Dent (Barnes and Stabler, 1872)].

122. **Barbula rigidula** (Hedw.) Mitt. On limestone walls near the Hyning, Levens c.fr. (Barnes and Stabler, 1867); Whitbarrow (Barnes, 1872).

123. **Barbula cylindrica** (Tayl.) Schpr. *B. vinealis* (Bry. Brit.) On the garden wall at Levens Hall (Barnes and Stabler, 1868); Burneside (Barnes, 1869). ['By the Keswick road-side just out of the village of Ireby' (W. Borrer, 1845)].

124. **Barbula Hornschuchii** Schultz. On the garden walk, Green Gate Cottage, Levens (Barnes, 1868); Bowness (Barnes); Kendal Race-course (Binstead, 1888).

125. **Barbula revoluta** (Schrad.) Brid. On the garden wall at Levens Hall (Barnes, 1868); near Dallam Tower (1870); Brough (1890).

126. **Barbula convoluta** Hedw. Beetham (Barnes, 1868); Bridge End, Levens (1885); Levens Park (1886).

127. **Barbula unguiculata** (Huds.) Hedw. Common on mortared walls, Levens (Barnes and Stabler); Windermere (Clowes and Stabler).

VAR. **cuspidata.** Leasgill (Barnes, 1868).

128. **Cinclidotus fontinaloides** (Hedw.) P. B. 'On rocks in river (Lune), Kirkby Lonsdale' (Sir J. E. Smith, 1783); R. Kent (John Just); Windermere (Clowes); Brigsteer Mill (Barnes and Stabler, 1868); Levens Park (1869); Hawes Water (1878); R. Eden, Mallerstang (1888).

[**Leersia alpina** (Sm.) Lindb. *Encalypta commutata* N. and H. Ingleborough (Hooker).]

129. **Leersia extinctoria** (L.) Leyss. *Encalypta vulgaris* Hedw. Levens Park, among rocks (Barnes and Stabler, 1868); Ravenstonedale (Barnes, 1871); Kendal (1886); on mud-capped walls, Brough (1888).

January 1897.

130. **Leersia laciniata** (Hedw.). *Encalypta ciliata* Hoff. Helvellyn (Clowes); Loughrigg (Dr. J. B. Wood, 1864); Mardale (Barnes and Stabler, 1868); Hill Bell (1868); Harter Fell (1871); Longsleddale (1885); Rossett Ghyll (1875); Greenhead Valley, Grasmere (Binstead, 1888).

[**Leersia rhabdocarpa** (Schwaegr.) Lindb. Ingleborough (Nowell, 1857).]

131. **Leersia contorta** (Wulf.) Lindb. *Encalypta streptocarpa* Hedw. Common on limestone and mortared walls; rarely fruiting. Barrow Field c.fr.! (1868); Bowness; Levens Park; Kirkby Stephen (1888).

Fam. *WEBERACEÆ.*

132. **Webera sessilis** (Schmid.) Lindb., *Diphyscium foliosum* Mohr. Langdale and Grasmere (Sidebotham, 1845); Windermere and Hill Bell (Clowes, 1855); Maize Beck (J. G. Baker); Grayrigg Forest (1868); Kentmere (1869); Barrow Field (1878); Grisedale; Harter Fell (1871).

Fam. *GRIMMIACEÆ.*

1. Sub-fam. GRIMMIÆ.

133. **Grimmia conferta** Funck. On Yoredale Shale on hills between the rivers Dee and Lune (Barnes and Stabler, 1872).

134. **Grimmia apocarpa** (L.) Hedw. 'In comitatibus Eboracensi et Westmorlandico frequens.' (Hudson's Flora Anglica, ed. i.); Skelsmergh and Benson Knot (Dr. Gough); Levens (Barnes and Stabler, 1867); Yew Barrow, Witherslack (1870); Hill Bell (1868); Red Screes (1881); Pooley Bridge (1886); Mallerstang (1888):

VAR. β **alpicola** (Sw.) on stones, Stock Ghyll (1865).
γ **rivularis** (Brid.). Kentmere.
δ **gracilis** Schleich. Dollywaggon Pike (1893).
ε **pumila** Schpr. Helm Crag, Grasmere (Binstead, 1893).

135. **Grimmia maritima** Turn. Plentiful at Ulpha Crag, Foulshaw (Barnes and Stabler, 1869).

136. **Grimmia anodon** Bry. Eur. On the railway bridge at Dockergarth, Kendal (Binstead, 1886). The first discovery of this plant in England.

[**Grimmia incurva** Schwægr. *Grimmia contorta* Wahl. Sca Fell Pike, Cumberland (Binstead, 1886)].

137. **Grimmia funalis** (Schwægr.) Schpr. *Gr. spiralis* Br. Brit. Caldron Snout (Spruce, 1843): 'Rocks due west of Kirkstone Pass, and Dove Crag in Fairfield' (W. Borrer, 1845); Harter Fell (1871); Nan Bield (1875).

138. **Grimmia torquata** Hornsch. *Grimmia torta* Bry. Brit. Kirkstone Pass and Dove Crag (Borrer, 1845); Helvellyn (J. Nowell, 1867); Hill Bell (1868); Harter Fell (1869); Grisedale Pass (1893); Tarn Crags (Binstead, 1886).

139. **Grimmia Stirtoni** Schpr. On walls, New Hutton, near Kendal (Binstead, 1885); between Staveley and Ings (Binstead, 1885).

140. **Grimmia pulvinata** (L.) Smith. Common, especially on limestone. Barrow Field (Barnes, 1868); Helvellyn (J. Nowell, 1867); Levens; Hill Bell; near Penrith; Kirkby Stephen; Mallerstang. A variety with the capsule much resembling *Gr. orbicularis*, but with beaked operculum, is found on the rocks at Ulpha Crag, opposite Arnside.

141. **Grimmia orbicularis** (Bruch). On walls and rocks near Milnthorpe (Barnes, 1868); Levens (Stabler); between Kendal and Mint Bridge (Binstead, 1885); Brigsteer and Natland (Binstead); Arnside Point (1893).

142. **Grimmia trichophylla** Grev. Barrow Field, on rocks (Barnes and Stabler, 1868); on granite boulders near the Spital, Kendal (Binstead, 1885); on walls near Penrith 1886); Windermere (Binstead).

143. **Grimmia Hartmani** Schpr. Kentmere Park (1869); Burneside and Longsleddale (Binstead, 1885); Rydal and Thirlmere (Binstead, 1886). [Honister Crag (Boswell, 1858).]

144. **Grimmia subsquarrosa** Wils. On rocks by or in lakes and streams. Grisedale Tarn (Binstead, 1885); Haweswater (Binstead, 1893); near Bowness (Binstead, 1889); Rydal Lake and Grasmere (Binstead, 1893); Easedale (Binstead, 1887); Angle Tarn (W. B. Waterfall, 1887).

145. **Grimmia decipiens** (Schultz) Lindb. *Gr. Schultzii.* Far Easedale, Grasmere (Rev. H. G. Jameson, 1889). [Borrowdale, Cumberland (J. Nowell, 1859); Eskdale, Cumberland (Binstead, 1894).]

146. **Grimmia Donnii** Smith. Helvellyn (Dr. Greville, 1840). 'Stone walls everywhere among the mountains' (Borrer, 1845); Reston Scar and Long Sleddale (Gough); Windermere (Clowes); Grayrigg Fell (Barnes and Stabler, 1868); Staveley (1867); Wansfell; Hill Bell; Tebay; Kentmere; Red Screes and near Penrith.

147. **Grimmia ovata** Web. Mohr. *G. commutata* Hueb. Rocks near Rydal Water (Binstead, 1887).

148. **Grimmia ovalis** (Hedw.) Lindb. *Gr. ovata* Schwægr. Nab Scar, Rydal (J. E. Whalley); Fairfield (W. Crouch, 1867); Far Easedale, Grasmere (Binstead, 1887); Bow Fell (Binstead, 1894). [Rock in R. Duddon, Seathwaite (Binstead, 1894)].

[**Grimmia elongata** Kaulf. Wet rocks 2,500 ft., Whiteside, Cumberland (Binstead); Hobcarton, between Keswick and Crummock Water (Binstead, 1890).]

149. **Grimmia microcarpa** (Gmel.) Lindb. *Racomitrium sudeticum* Fk. On rocks, Helvellyn (J. Nowell, 1867); Fairfield W. Crouch); Nab Scar (1867); Swirrel Edge (H. N. Dixon, 1891); Mardale (Binstead, 1893). [Longstrathdale (1881); Sca Fell Pike (Barnes and Stabler)].

150. **Grimmia elliptica** (Turn.) Arn. Nan Bield (1873); Bleak Rigg Crags, Easedale (Binstead, 1885).

151. **Grimmia patens** (Dicks.) Br.Sch. On rocks, Kentmere (Binstead, 1886); Dollywaggon Pike and Long Sleddale (Binstead, 1885); Scandale (C. Barton, 1888).

152. **Grimmia acicularis** (L.) C. Muell. Belle Isle, Windermere (Clowes); Orrest Head (T. Gough); Kentmere (1868); Stock Ghyll; Harter Fell (1871); Ulpha Crag, Foulshaw (1867); Black Crag, Staveley (1879); Mallerstang (1888).

153. **Grimmia aquatica** (Brid.) C. Muell. *Racomitrium protensum* Braun. Maize Beck (J. G. Baker); Windermere (Barnes and T. Hartley, 1869); Mardale c.fr. (1869); Low Naddle Forest (1887).

154. **Grimmia obtusa** (Sm.) Lindb. *Racomitrium heterostichum* Brid. var. *gracilescens* B. & S. Longsleddale (Binstead, 1886). [Ullock, Keswick (Rev. J. Kidson, 1888).]

155. **Grimmia affinis** (Schleich.) Lindb. *Racomitrium heterostichum β alopecurum* Hueb. Easedale, Grasmere (Binstead, 1893).

156. **Grimmia heterosticha** (Hedw.) C. Muell. Rocks on Helm, near Oxenholme (John Just); Long Sleddale (T. Gough); Barrow Field (Barnes, 1868); Witherslack; Staveley (1868); Ulpha; Ambleside (1868); Ings; Kentmere (1867); Barbondale.

157. **Grimmia fascicularis** (Schrad.) C. Muell. Long Sleddale (T. Gough); Low Borrow Bridge (Barnes, 1869); Kentmere (1869); Wildboar Fell (1888).

158. **Grimmia hypnoides** (L.) Lindb. *Racomitrium lanuginosum* Brid. Benson Knot (T. Gough); Windermere (F. Clowes);

Crook (1868); Kentmere (1869); Staveley (1877); Nan Bield; Naddle Forest (1887); Wildboar Fell (1888).

159. **Grimmia canescens** (Timm) C. Muell. Windermere (F. Clowes); Low Gill (1869); Grayrigg Fell (Barnes and Stabler, 1876); Patterdale (J. Cash, 1876); Red Screes (1881); Wildboar Fell (1888).

VAR. **ericoides** (Schrad.) C. Muell. Slate Quarries, Grasmere (J. Atkinson, Barnes and Stabler, 1868).

160. **Hedwigia ciliata** (Dicks.). Benson Knot (T. Gough); Nab Scar (1867); on walls, Staveley (1867); on slate rock, Ulpha (1867); Kentmere (1869); Naddle Forest (1871); Patterdale (J. Cash, 1878); Witherslack; Crook (Barnes); on slated roof at Levens Hall.

VAR. **viridis** Schpr. Hill Bell (1871); Haweswater (Slater and Stabler, 1878); Grasmere (Binstead); Kentmere (Binstead and Marquand, 1885).

VAR. **striata** Wils. On inclined face of rock, Nab Scar (Atkinson, Barnes and Stabler, 1867); Easedale, Grasmere (Binstead, 1885).

161. **Hedwigidium imberbe** Sm. On rocks north of Staveley (Stabler, 1875); Ambleside (G. Webster, 1891); Far Easedale, Grasmere (Binstead, 1893). [Coniston (G. Burgess 1884).]

162. **Coscinodon cribrosus** (Hedw.) Spruce. *Coscinodon pulvinatus* Spreng. Staveley, near Kendal, on old wall (Binstead, 1886). [Coniston (Prof. Baker, 1867); Lorton Vale, near Cockermouth (Binstead, 1889); Tilberthwaite Glen, with *Grimmia montana*, and at Braithwaite, near Keswick (Binstead, 1890 and '93)].

[**Glyphomitrium Daviesii** Sm. On rocks in the bed of the stream immediately behind the Red Lion Hotel at Rosthwaite, near Keswick (Dr. Carrington and W. H. Pearson, 1884)].

163. **Glyphomitrium polyphyllum** (Dicks.) Mitt. *Ptychomitrium polyphyllum* Br. & Sch. Long Sleddale (T. Gough); Windermere (F. Clowes); Barrow Field (Barnes); Ambleside (1868); Brigsteer (1869); Staveley; Rydal.

2 Sub-Fam. *ORTHOTRICHEÆ*.

164. **Anœctangium Lapponicum** Hedw. *Zygodon* Bry. Brit. *Amphoridium* Schimp. Fissures of basaltic rocks, Caldron

Snout (R. Spruce, 1843); Windermere (Clowes); Hill Bell (1868); Grayrigg Forest; Kidsty Pike; Harter Fell; Barbon Fell; Tarn Crags, Helvellyn (Binstead and Waterfall).

165. **Anœctangium Mougeotii** (Bruch) Lindb. 'In dry chasms of rocks in many places' (Borrer in Phytol., 1846); Kirkstone Pass (Clowes, 1855); Hill Bell (1868); Nab Scar; Harter Fell; Grisedale (J. Cash, 1878).

166. **Pleurozygodon æstivus** (Hedw.) Lindb. *Anœctangium compactum* Schwaegr. Langdale Pikes (J. Sidebotham, 1845); Hill Bell (1868); Nan Bield (1875); Brown Ghyll, Langdale c.fr. (1893).

167. **Zygodon viridissimus** (Dicks.) Brown. On trees, Levens Park c.fr. (Barnes and Stabler, 1868); Brigsteer (1869); Mallerstang.

β **rupestris** Lindb. Witherslack (1874) and Whitbarrow, on walls.

168. **Zygodon conoideus** (Dicks.) Hk. & Tayl. On elder, Rydal (Barnes, 1868). I have some doubt about this being the true plant.

[**Zygodon gracilis** Wilson. Ingleborough (W. West, 1868).]

169. **Orthotrichum rupestre** Schleich. On stone walls, Mardale (W. Borrer, 1845). Slated roof of the wood and peat shed, Levens Hall (Barnes and Stabler, 1868); Ambleside (1868); on boulders by the west side of Haweswater; Grasmere (Binstead, 1886); Staveley (Barnes).

170. **Orthotrichum affine** Schrad. On poplars and old willows, Levens (Barnes and Stabler, 1868); Kentmere (1868); Windermere (F. Clowes); Underbarrow Mill (Barnes, 1869); by river Eden, Mallerstang (1888).

VAR. **fastigiatum** (Bruch). *O. fastigiatum.* On poplars, Levens (Barnes, 1868).

NOTE.—Mr. W. Wilson in a letter to Mr. J. M. Barnes, dated 17th July, 1869, says:—'I dare say your moss is the same as my *O. medium.* I have little confidence in it as a species, and, indeed, it may belong rather to *O. fastigiatum*, which I never yet could grasp, though I have often tried to comprehend it.'

171. **Orthotrichum striatum** (L.) Hedw. *O. leiocarpum* B. & S. On poplars, Levens (Barnes, 1868); Windermere (Clowes); Kentmere (1868); Brigsteer Wood (1869); Plaice Fell (W. B. Waterfall, 1887).

172. **Orthotrichum Lyellii** Hk. & Tayl. Windermere (Clowes); Crook c.fr. (Barnes, 1868); Levens Park, on trees (1868); Staveley (J. A. Martindale, 1868); Ings (1872); Patterdale (1878); Mallerstang (1888).

173. **Orthotrichum diaphanum** Schrad. Rydal Park (Clowes, 1885); on willows and poplars on The Moss, Levens (Barnes and Stabler, 1868); Lyth; on shaded limestone walls, Levens.

174. **Orthotrichum cupulatum** Hoffm. On a wall, Aikrigg End, Kendal (Barnes, 1868); on limestone walls (brockram), Kirkby Stephen (1888).

VAR. **nudum.** Brigsteer Mill (Barnes, 1868); on rocks by River Kent, Levens Park, and near the mouth of the River Beela (Barnes and Stabler).

175. **Orthotrichum anomalum** Hedw.

VAR. *β* **cylindricum** Schpr. *Orthotrichum anomalum* Sm. Fl. Brit. & Wils. Bry. Brit. On limestone walls and rocks, common, Levens (1868); near Pooley Bridge (1886).

176. **Orthotrichum rivulare** Turn. Low Wood, Windermere (G. E. Hunt, 1867); on trees by River Beela, Dallam Tower Park (Barnes and Stabler, 1868); Rigmaden Park (1880); River Mint, Meal Bank (Binstead, 1886).

177. **Orthotrichum Sprucei** Mont. On trees by River Beela, Milnthorpe (Barnes, 1867). I have also gathered it at the same place.

178. **Orthotrichum stramineum** Hornsch. Windermere (Clowes); on poplars, Levens (Barnes, 1868); Kentmere (1868); near Pooley Bridge, Ulleswater (1886); Place Fell (W. B. Waterfall, 1887); by River Eden, Mallerstang, near Pendragon Castle (1888).

179. **Orthotrichum tenellum** Bruch. On poplars on The Moss, Levens (Barnes, 1868); Nether Levens (1888).

180. **Orthotrichum pulchellum** Brunton. On poplars, Levens, scarce (Barnes, 1868); near Pendragon Castle, by river Eden (1888). [On trees, Dent (J. Nowell, 1861); near Sedbergh (Binstead and Stabler, 1886).]

181. **Weissia americana** (P. Beauv.) Lindb. *Ulota Hutchinsiæ* Sm. Langdale (1875); on rocks, Grasmere (Binstead, 1886). [Near Keswick (Dr. Carrington and W. H. Pearson, 1884).]

[Weissia Drummondii (Hk. & Grev.) Lindb. Cronkley Fell, Yorks. (1866).]

January 1897.

182. **Weissia Bruchii** (Hsch.) Lindb. Windermere (F. Clowes); Whitbarrow and Heversham Head, on trees and bushes (Barnes and Stabler); Grayrigg (1868); Kentmere Plantation; under Scout Scar; Naddle Forest (1878); Oxendale, Langdale (1875); Benson Knot (C. H. Binstead, 1885).

183. **Weissia ulophylla** Ehrh. *Ulota crispa* H. On trees, Heversham Head (Barnes, 1868); Naddle Forest, in plenty (Barnes and Stabler); Grayrigg; Kentmere.

VAR. **crispula** (Bruch). Ambleside (W. Wilson, 1838); Naddle Forest (Barnes).

184. **Weissia vittata** (Mitt.) Braithw. *Ulota calvescens.* 'Westmorland (Barnes and Stabler)'; vide Sch., Syn. Musc. Eur., Ed. II., p. 304. I was not aware that we had gathered this plant until the above announcement. I suppose Prof. Schimper must have detected it among some of our gatherings.

185. **Weissia phyllantha** (Brid.) Lindb. Windermere (F. Clowes); on poplars, Levens (Barnes and Stabler); Kentmere (1869); Naddle Forest, on hazel, etc

Fam. *SCHISTOSTEGACEÆ.*

[**Schistostega osmundacea** (Dicks.). Caves of Isis Parlis, on the left bank of river Eamont (J. A. Martindale, 1882). I feel certain this species will be found in the red sandstone district of North Westmorland, as the river only separates this habitat from the county.]

Fam. *SPLACHNACEÆ.*

186. **Splachnum ampullaceum** L. Windermere (J. Nowell, 1859); in bogs south of Bowness (J. Atkinson, 1865); Lambrigg Park (T. Gough, 1862); Ulpha, Foulshaw (Barnes and Stabler, 1867); Barrow Field; Kentmere.

187. **Splachnum pedunculatum** (Huds.). *S. sphæricum* (Sw.). 'In ericetis montosis Moors dictis comitatu Westmorlandico'! Hudson's Flora Angl., ed. i. (1762), p. 397. Carnigill (? Yorks.) (T. Gough); Skeggleswater (Barnes and Stabler); Wildboar Fell (Barnes, 1871); Red Tarn, Helvellyn (1886); near source of river Eden (1888); Stainmoor (1890).

BIRD-NOTES FROM THE HUMBER DISTRICT: AUTUMN OF 1896.

JOHN CORDEAUX, M.B.O.U.,

Great Cotes House, R.S.O., Lincoln; Ex-President of the Yorkshire Naturalists' Union.

In preparing these notes I have to acknowledge indebtedness to several correspondents who have kindly supplied me with information—chiefly to Mr. G. H. Caton Haigh, of Grainsby Hall; Mr. H. B. Hewetson, of Leeds (from Easington); Mr. Philip Loten, of Easington; and Mr. Matthew Bailey, of Flamborough.

It will be observed that the season has been marked by two very pronounced movements. The first of them, probably both immigratory and emigratory, during the first week in September, of various small summer visitors, such as Pied Flycatchers, Sedge-warblers, Garden-warblers, Willow Wrens, Whitethroats, Wheatears and Redstarts, Wryneck, Fernowl, Woodchat Shrike, and the little Tree-warbler (*Phylloscopus viridanus*), a summer resident in Kashmir and North-West India. The meteorological conditions were easterly winds with heavy rains.

The second great movement was in October, from the 14th to 17th inclusive. This brought Woodcock, Short-eared Owls, Blackbirds, Ring-ousels, Thrushes, Redwings, Golden-crested Wrens, Bramblings, Redbreasts, Greenfinches, Chaffinches, Grey Crows, Grey Shrikes, and many others. The weather conditions, north and north-easterly winds from light to a gale, and much rain. With this 'rush' came the Indian or Eastern Houbara Bustard on the 17th. Mr. Thos. O. Hall, of the Flamborough Lighthouse, informed me that 'the great rush was on the night of the 16th to 4 a.m on the 17th, which consisted of Blackbirds, Ousel, Redwing, Thrushes, Skylarks, and Finches, but no Starlings and Rooks.'

It is rather remarkable that two birds from Central Asia should have turned up in the district within a few miles of each other on Sept. 5th and Oct. 17th, namely, the Bustard and the Tree-warbler.

Much nonsense was written at the time in both the London and local press on the enormity of shooting this Bustard—ignorantly called by the writers the Great Bustard—a former inhabitant of the wolds of Yorkshire. The Indian Houbara Bustard comes from Central Asia, where it is abundant, and there was not the slightest chance of this far wanderer ever finding its way back or becoming naturalised in this country. No doubt its fate would have been decided by the first prowling Fox that came that way, or by Stoat or Weasel. The scientific results of an examination of the body by

dissection were considerable. And the shooter got ten guineas for the bird. No doubt it will in the future delight the eyes of many ornithologists, as it has been most admirably set up by that talented artist, Mr. Loten, of Easington.

Numenius phæopus (L.). **Whimbrel.** July 10th. Passing south at midnight; some have been present on the coast near the Spurn all through the summer months.

Cuculus canorus L. **Cuckoo.** July 10th to 20th. Hundreds of young brown birds have passed along the line of the Spurn sandhills towards the south.

Tringa canutus L. **Knot.** July 20th. Already some return birds on the coast.

Totanus ochropus (L.). **Green Sandpiper.** July 17th. Mr. Haigh saw several Green Sandpipers, also a few Common Sandpipers, *Tringoides hypoleucus* (L.), on the coast at this date.

Podicipes nigricollis C. L. Brehm. **Eared Grebe.** August 22nd. A female shot at Easington and set up by Mr. P. Loten.

Asio accipitrinus (Pallas). **Short-eared Owl.** August 22nd. Some at Easington at this date. Oct. 11th to 15th, numerous in the Spurn district, also on the coast of Lincolnshire.

Spatula clypeata (L.). **Shoveller.** Mr. Haigh informs me that he has no doubt this duck nested near the coast this summer; this is a new locality for it.

Œdemia nigra (L.). **Scoter.** September 2nd. Thousands off the coast.

Machetes pugnax (L.). **Ruff.** September 2nd. Mr. Haigh shot two Ruffs from a flock of three on the coast.

Podicipes cristatus (L.). **Great Crested Grebe.** Sept. 3rd. Mr. Haigh saw three at sea, off Donna Nook.

Hæmatopus ostralegus L. **Oyster-catcher.** September 3rd. One killed at the Spurn Light. A great rush of many species at this time.

Muscicapa atricapilla L. **Pied Flycatcher.** September 3rd. Mr. Haigh saw a single bird on the coast at North Cotes. September 5th, E., heavy rain—several. September 7th and 9th, the same.

Acrocephalus phragmitis (Bechstein). **Sedge Warbler.** Sept. (night of) 3rd-4th. Killed against Withernsea Lighthouse, with Whitethroats, Willow Wrens, and other small birds.

Caprimulgus europæus L. **Goat Sucker.** Sept. (night of) 3rd-4th. Killed against window at Spurn.

Sula bassana (L.). **Gannet.** Sept. 4th. Several, in all states of plumage, off coast, between Donna Nook and Saltfleet Haven. Also

Stercorarius crepidatus Gm. **Arctic Skua.** In some numbers about this date.

Sylvia hortensis Bechstein. **Garden-Warbler.** September 5th. One at North Cotes, Mr. Haigh says the first he has ever seen on migration. September 7th, another. A great rush of small birds this week: Whitethroats, Redstarts, Wheatears, Willow-Wrens. At Flamborough

Saxicola œnanthe L. **Wheatears.** Swarmed the first week in September.

Phylloscopus viridanus (Blyth). **Greenish Tree Warbler.** Sept. 5th. Shot by Mr. Haigh from the 'great hedge' at North Cotes on the Lincolnshire coast. It is new to Britain, but has occurred three times on Heligoland. This specimen was exhibited by Mr. Haigh at the meeting of the British Ornithologists' Club, October 21st, 1896. My son, Captain W. Wilfrid Cordeaux, writing from India, says—'I know *P. viridanus* well in Kashmir and the Punjab, and have watched it in the willows of Suru, besides the grey-white river tumbling and roaring from the snow.'

Iÿnx torquilla L. **Wryneck.** September 8th. One shot at Easington.

Lanius pomeranus Sparrman. **Woodchat Shrike.** Sep. 8th. Mr. H. B. Hewetson, jun., saw a pair on a hedge top at Easington. He knows these birds very well, as he used to see them every day in Morocco.

Phalaropus hyperboreus (L.) **Red-necked Phalarope.** September 20th. One shot by Stubbs the younger at North Cotes on his plover-pool.

Phalaropus fulicarius L. **Grey Phalarope.** September 23rd. One shot at Tetney by Thomas Barker. Another at Easington on Sep. 26th. Another at Tetney by Stubbs on Oct. 12th, and several on coast further north.

Corvus cornix L. **Hooded Crow.** September 26th. First seen at the Spurn. October 17th. Many with black Crows during day at Easington, flying south to north.

A Grimsby fishing smack, the 'Young George,' was wrecked under Dimlington Cliff on October 14th. There was a Grey Crow on board, which the men said came to their vessel when on the Dogger Bank; although thrown up it refused to leave

and stuck by the wreck. Mr. England, of the coastguard service, who lives at Easington, told me he found it dead on October 21st. All this time from the 14th it had pertinaciously stuck to the ship.

Tringa minuta Leisler. **Little Stint.** Sep. 26th. A flock seen on the shore near Kilnsea.

Astur palumbarius (L.). **Goshawk.** Sep. 27th. Mr. H. B. Hewetson, sen., writes—'To-day, as I stood in the gale in my man's garden at Easington, I saw flying in the teeth of the wind, and at a very short distance, a pair of Hawks, which at first glance I thought Peregrines, but as they battled with the wind, flying very low, I saw they were Goshawks. There was no mistake about them, as they turned their lovely pale, soft, grey backs they looked like immense Cuckoos. Their tails were very long. I observed that the birds in Easington and pigeons turned out to bully them; they got on very slowly, as the squall was at its height when they passed.'

Pernis apivorus (L.). **Honey-Buzzard.** A beautiful adult male, which I saw in Mr. Jeffreys' shop, at Grimsby, had the head ash-grey, and the brown of the back tinged with lovely purple reflections. It was shot about the middle of the month. Another was got from Ashby-cum-Fenby Wood, on Sept. 15th, and a second at Maltby Wood, near Louth, on or about the 21st. Both these latter I saw at Mr. Kew's, of Louth. Mr. Fieldsend, of Lincoln, has told me of a fourth, shot near Middle Rasen, on the 18th of September, and now in the County Museum.

Turdus merula L. **Blackbird.** October 5th. Mr. Haigh reports a good many blackbirds in the coast hedgerows. On October 8th also, with southerly gale. Early on the morning of December 5th I saw 25 to 30 cocks in the shrubs opposite my dining-room window.

Turdus viscivorus L. **Mistletoe Thrush.** An immigration the same dates as the blackbird.

Motacilla raii (Bonaparte). **Yellow Wagtail.** October 8th. Mr. Haigh saw one at North Cotes.

Sylvia atricapilla (L.). **Blackcap.** October 11th. One in the garden at Grainsby Hall.

Squatarola helvetica (L.). **Grey Plover.** October 12th. North gale. Very many on coast of Lincolnshire, the Humber flats, and the Spurn district.

Turdus iliacus L. **Redwing.** October 14th. N.E., light. A few. October 15th. N. and N.E., strong, and rain. Many. October 17th. Many at Spurn and Kilnsea, and coming in during day. Altogether a very large immigration of Redwings into the district.

Scolopax rusticula L. **Woodcock.** October 14th. N.E., light. First flight in the Spurn district; about forty shot.

Regulus cristatus K. L. Koch. **Gold-crested Wren.** Oct. 11th. Many at Spurn. Oct. 15th, the same. Oct. 17th, several about, and subsequently.

Erithacus rubecula (L.). **Robin.** October 15th. N. to N.E. strong, rain. Hundreds on the coast. October 17th, thousands in the Spurn district. There has been a very large immigration.

Fringilla montifringilla L. **Brambling.** September 26th. One was shot at Out-Newton, Holderness, at this date. The main arrival, however, was on October 15th, with the great rush of many species.

Lanius excubitor L. **Great Grey Shrike.** October 15th. One adult male (*L. major*) at Easington. One Grey Shrike at Flamborough about same date.

Ligurinus chloris (L.). **Greenfinch.** October 15th. One of the heaviest immigrations I recollect of this species about this date. The stubbles and hedgerows swarmed with them.

Turdus torquatus L. **Ring-Ouzel.** October 15th and 16th. A very considerable immigration, both in Lincolnshire and Holderness; with few exceptions male birds. Many at Flamborough the same time, a most unusual number.

Sylvia curruca (L.). **Lesser Whitethroat.** October 17th. Adult female shot from hedge at Easington.

Phylloscopus rufus (L.). **Chiffchaff.** October 17th. One shot at Easington, and subsequently three or four more. These measure considerably less than the normal dimensions, and have been referred by Mr. Dresser to the small eastern or south-eastern race of the Chiffchaff known as *Phylloscopus brehmi*. Their appearance, and so late in the year is remarkable, coming at the same time to the east coast as the Indian Houbara, and in the same season with two such distinctly eastern species as *Phylloscopus viridanus* and *P. proregulus*, both the latter new to Britain.

Otis macqueeni J. E. Gray. **Indian or Eastern Houbara Bustard.** October 17th. First seen at Kilnsea; shot in

Easington Parish on the 18th by G. E. Clubley. Full particulars of the occurrence, which is the third for the British Islands, have already been given in the 'Naturalist,' 1896, pp. 323-4.

Tringa striata L. **Purple Sandpiper.** October 19th. One in very handsome winter plumage shot from the side of a rain pool in a fallow field at Easington.

Anthus rupestris Nilsson. **Scandinavian Rock Pipit.** October 19th. One shot at Easington Lane-end.

Otocorys alpestris (L.). **Shorelark.** October 19th. One sent to Mr. Loten's shop, shot on the coast at Kilnsea.

Hirundo rustica L. **Swallow.** October 19th. I saw a considerable flight passing to the south, when on the coast near Kilnsea.

Carduelis spinus (L.). **Siskin.** November 19th. Mr. Wm. Eagle Clarke saw a Siskin at Kilnsea.

Passer montanus (L.). **Tree-sparrow.** November 14th. I saw a flock on the top of a yew close to my bedroom window at early morning; evidently newly come in.

Motacilla melanope Pallas. **Grey Wagtail.** November 10th. The old birds have returned to their winter quarters here; one was capturing flies against the window pane to-day.

Plectrophenax nivalis (L.). **Snow Bunting.** November, first week. Mr. Matthew Bailey informs me of a very great immigration of Snow Buntings at Flamborough.

Mergulus alle (L.). **Little Auk.** Several early in November seen off the headland at Flamborough, also at the Spurn.

Procellaria pelagica (L.). **Stormy Petrel.** During the same time.

Larus glaucus. Glaucous Gull. Brought to Mr. Bailey.

Chelidon urbica. House Martin. November 22nd. One seen flying to and fro in front of the house (Great Cotes) this afternoon.

NOTE—FUNGI.

Hirneola auricula-judæ.—In reference to Mr. Petty's note I may say that in 1881 I noticed a fair quantity of this plant on elders; it was growing a few feet above sea-level between Grange and Witherslack. I collected and distributed some of it at the time.—Wm. West, Bradford, November 23rd, 1896.

NOTE—ALGÆ.

Algæ at Roche Abbey.—Correction.—In my article in our last issue on the above subject, the length of the Diatom *Pleurosigma attenuatum* was by a clerical error given as '001" instead of '01".—J. Newton Coombe, Sheffield, 25th November, 1896

NOTES AND NEWS.

We have much pleasure in reprinting a list of specialists in various departments of Palæontology who will assist geological workers in the determination of fossils. All who have attempted to determine a miscellaneous collection of fossils from any geological formation have soon discovered the difficulty of affixing correct names to all the specimens, and if they have been doing this work with the object of publishing some paper, either dealing with the stratigraphy of a district, or attempting to correlate geological horizons in different parts of the world, they have probably given the task up in despair. A few, no doubt, have been fortunate in possessing friends whose knowledge of particular groups of fossils could be drawn upon. But it is not always that one knows the best person to apply to, or that one can be certain of a favourable reception. It is to our active contemporary, 'Natural Science,' that this excellent move is due, and we congratulate the editorial staff of that journal on so excellent a commencement of the constructive portion of their work. Their list is as follows :—

LIST OF SPECIALISTS.

VERTEBRATA—		
Mammals ...	... From any horizon ...	... R. Lydekker.
,, ...	... British Pleistocene ...	... E. T. Newton.
,, Rodents	... From any horizon ...	... C. Forsyth Major.
Birds	... ,, ,, ...	... C. W. Andrews.
Reptiles	,, ,, ...	R. Lydekker. / A. Smith Woodward.
Amphibia ...		
Fish	... ,, ,, ...	... ,, ,,
,, ...	... Palæozoic	... R. H. Traquair.
,, ...	... Coal-Measure ...	... H. Bolton.
ARTHROPODS—		
Arachnids ...	... From any horizon ...	... R. I. Pocock.
Myriopods ...	... ,, ,, ...	... ,, ,,
MOLLUSCS	British Non-Marine, Tertiary to Recent	B. B. Woodward.
Cephalopods		
,, Esp. Nautiloidea	From any horizon ...	... A. H. Foord.
,, Ammonoidea[1]	... From Lias and Lower Oolite	... S. S. Buckman.
Gastropods ...	... Jurassic	... E. Wilson.
,, ...	Palæozoic *Murchisonia*, *Ælisina*, and allied forms	M. Jane Donald.
,, ...	... British Eocene and Oligocene[2]	G. F. Harris.
Pelecypods ...	.. ,, ,,	
,, ...	... Cretaceous	... H. Woods.
,, ...	... Coal-Measure	... H. Bolton.
BRYOZOA	... Jurassic	... J. W. Gregory.
,, ...	... Precarboniferous[3] ...	... ,,
BRACHIOPODS ...	... Mesozoic	... J. F. Walker.
ECHINODERMS—		
Echinoids ...	... Palæozoic	... J. W. Gregory.
Asteroids ...	From any horizon ...	... ,,
Ophiuroids ...		
Crinoids	,, ,, ...	... F. A. Bather.
Cystids		
Blastoids... ...		
FORAMINIFERA ...	... ,, ,, ...	F. Chapman. / C. D. Sherborn.
PLANTS	... Mesozoic	... A. C. Seward.
,, ...	... Palæozoic	... R. Kidston.
Monocotyledons (Palms, etc.)	From any horizon ...	... A. B. Rendle.
Algæ	,, ,, ...	... G. Murray.

The addresses of the above are mostly to be found in the lists of Members of the Geological Society and Geologists' Association, as well as in other lists and address-books.

[1] Suture-line to be marked in Indian Ink.
[2] If allowed to retain duplicates.
[3] If allowed to select specimens for British Museum.

January 1897.

Any one of these is willing to determine fossils when requested to do so for purposes of publication, and this enterprising action will doubtless be welcomed by many local geologists. We hope that this list is only a first instalment, for there certainly appear to be a large number of groups of fossils in which no one is prepared to pose as an authority. We should have thought that some one might have been found for the trilobites, the belemnites, or the Palæozoic brachiopods. Obviously, if anyone wishes to take up the study of some special division of palæontology, he need not be deterred by the lack of an opening.

As a matter of course there are certain conditions very properly laid down. Every specimen sent to a specialist must be labelled with definite locality and horizon. The sender must give satisfactory assurance that he desires the information for purposes of publication, and not merely for the sake of having his collection named. Full acknowledgment of the assistance rendered by the specialist must be published. The specialist reserves the right of himself publishing, in any way that seems to him best, any new species or other points of biological interest afforded by the material submitted to him. It is also important to notice that many of these specialists are connected with public institutions or have their time otherwise largely occupied ; in some cases they will justly demand to receive some further benefit, as by the presentation of selected specimens to their institution.

We may point out, however, serious omissions in these conditions, and we think it ought to be made clear that in return for the full acknowledgment to be given of the specialists' assistance, the specialist himself should undertake to give a correspondingly full acknowledgment to the sender of the material on every occasion of publishing notes on the specimens, and also that the right of priority in publication is also to be reserved to the sender.

NOTE—GEOLOGY.

Lincolnshire Boulder Committee's Report.—I omitted to mention in my report on Lincolnshire Boulders, printed in the November 'Naturalist,' pp. 349 et sequ., that those numbered 3 to 41 were from notes taken on the occasion of the visit of the Hull Geological Society to Louth in June 1896.—W. Tuckwell, Waltham, Grimsby, Nov. 1896.

NOTE—PALÆONTOLOGY.

Middle Lias Reptile from Lincoln.—In the course of some investigations which I have lately been conducting on the Lincolnshire Middle Lias, I have been struck with the rarity with which reptilian remains occur in rocks of this age, both in this and in the adjoining counties. No mention is made by Prof. Blake in his 'Yorkshire Lias,' nor by any members of the Survey in their memoirs on the geology of Lincolnshire and Rutland, as to the occurrence of any trace of Middle Lias reptiles. The recent discovery of a fine Enaliosaurian relic should not therefore be without some interest to your readers. It consists of a curved tooth, thirteen lines in length, the enamel and sculpturing of which are excellently preserved. It is curved in shape, and is marked with numerous, longitudinal, long and short striæ arranged alternately. It was found by me in Standley's Pit, at Lincoln, embedded in a nodular mass of ferric sulphide that lay in the 'Marlstone' rock of the *Margaritatus* Zone. It is apparently the tooth of a Pleiosaur, and as such the find is an addition to our knowledge of Lincolnshire and Yorkshire Middle Lias forms.—J. H. Cooke, Lincoln, Dec. 13th, 1896.

NOTES AND NEWS.

We regret to learn that Mr. J. E. Harting is relinquishing the Editorship of our excellent contemporary 'The Zoologist,' which has been so conspicuous a success under his 20 years' charge. We look forward to the much-needed work on British Mammalia, which he will now find time and leisure to complete, and he has our best wishes on his retirement from editorial duties. His successor is to be Mr. W. L. Distant, under whose care we trust the journal will not alter its character in any way.

COW-GRASS AND RYE-GRASS.

REV. E. ADRIAN WOODRUFFE-PEACOCK, L.Th., F.L.S., F.G.S.,

Vicar of Cadney, Brigg; Organising and Botanical Secretary, Lincolnshire Naturalists' Union; Curator of the Lincolnshire County Herbarium.

AN intermittent correspondence on Cow-grass has been going on for some months past in 'The Field,' but no new facts seem to have been brought forward during the discussion. Some points, however, that want settling, if possible, have come to the front. Three are especially interesting, and may be stated thus. First, to what species of *Trifolium* does the English name Cow-grass rightly belong? Secondly, what in scientific nomenclature is the so-called Cow-grass of modern seedsmen's catalogues? Thirdly, the eternal question of perenniality. All these points are surrounded by difficulties, but, we believe, admit of a satisfactory explanation. Taking them as they come, we find on turning to our notes, that if priority holds good in English names, as in the Latin nomenclature, there can be no doubt about the first difficulty. The name Cow-grass appears first in print, to our knowledge, in 1789, in 'The Trans. Soc. Arts,' vol. 2, p. 57. Arthur Young used it again in 1797, 'Agric. Suffolk,' p. 84. G. Sinclair again in 1825, 'Hort. Gram. Woburn., p. 218. In all these cases it is applied to one species, *Trifolium medium* of Hudson, which, in unbotanical language, can always be recognised by its zigzag growth, lax stalked heads, long pointed stipules (i.e., leaf footstalk appendages), creeping roots, and deeper coloured flowers. It is known by the names Cow-grass, Marl Clover, Cow-clover, Meadow Clover, and Zigzag Trefoil. We could give authorities for all these. It is a valuable food plant in permanent pasture, but quite unfitted for alternate husbandry or temporary leys, for its creeping roots cling to the fallows like the dreaded Twitch or Couch-grass, *Triticum repens* L.

In the next place, what is the Cow-grass of modern commerce, of temporary or permanent seeds? The so-called annual or perennial Red Clovers of seed merchants? Two varieties at least of the typical Red Clover, *Trifolium pratense* of Linnæus, are represented by two strong forms and many intermediate crosses, we believe. The type species may be thus described to distinguish it at a glance from the *T. medium* of Hudson above. Heads dense and set without a stalk upon the highest leaves or very shortly stalked above them, leaf stipules blunt and abruptly bristle-pointed, leaflets generally marked with a curved arrow-head in white on the upper surface, root spindle-shaped.

January 1897.

The so-called perennial variety is the *sativum* of Schreber, a Dutch and N. German native, and not uncommonly found in England as an escape from cultivation. It may be distinguished from the variety coming next by having the stem erect, robust, furrowed, and less hairy ; leaflets nearly entire ; stipules very large ; calyx teeth a little shorter than the calyx tube, and erect in fruit ; flower dull purplish pink or more rarely ochreous white. This is the much boasted perennial Red Clover or Cow-grass—the *T. pratense, perenne* of Mr. Martin J. Sutton, and other writers. The other variety is the *sylvestre* of Reichenbach, which has the stem usually rather shorter, more slender, marked with lines rather than furrowed, usually solid ; stipulus much smaller ; calyx teeth about equal to the tube and spreading in fruit ; more hairy, especially the calyx ; the flowers of a deeper purple and the whole plant a lighter green than *sativum*. This is the native Red Clover of England, or Cow-grass, common on road-sides, field-borders, and in pastures, where it is known as Honeystalks and Honeysuckle Clover, and by a score of other names too familiar to print. There are many intermediate forms between these two varieties, which are perfectly indistinguishable from verbal descriptions ; a trained eye can separate the green but not the dried specimens.

The next point to consider is, are either of these species truly perennial? Both are and both are not, and the same rule applies to the intermediate forms. On some rich, deep loams, *sylvestre* is practically perennial, and in the same favoured spots *sativum* is certainly so. But, speaking generally, neither is perennial, though there can be no doubt that the *sativum* forms have a more tenacious hold on most soils than the *sylvestre* forms. It is a question of soil and climate, of whether the forms, if not able to renew themselves by seeding can throw out prostrate stems rooting at the nodes, rather than an inherent quality of the species. It has been asserted* that *T. pratense, perenne* doubtless originated in a cross between *T. pratense* and *T. medium*. But as far as we are aware, not a particle of evidence has been brought forward to prove this statement, and hybridity is a question about which botanists want the fullest proof or they withhold their belief. For years the White or Dutch Clover of commerce—*T. repens* L.—was believed to be a hybrid because it soon died out in permanent pastures.† Now we have hybridity suggested as the most likely reason for the very opposite characteristic of a variety of another species. *T. medium*

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* Martin J. Sutton's 'Permanent and Temporary Pastures,' 5th ed., 1895, p. 75.

† G. Sinclair's 'Hortus Gramineus Woburnensis,' 2nd ed., 1825, p. 223, footnote.

of Hudson, spreads by underground stolons or suckers, *T. pratense perenne* by overground stolons rooting at the nodes; so the latter must be a hybrid of the former! Verily, guesses are seldom scientific and rarely right. For the reader not versed in botanical terminology I will add a stolon is a shoot or sucker from the crown of the root just above or below the ground, extending almost horizontally along, above, or just under the surface, and developing roots and leaves, in time perfect plants, at certain points called nodes. When the connecting part dies, an independent new plant is the result. The Marsh Bent or Common Fiorin (*Agrostis stolonifera* L.) is a good instance of the above-ground stolon and the Twitch or Couch of the under-ground kind. While I was inquiring into all the clover questions about two years ago, Mr. Martin J. Sutton most obligingly sent me down dried specimens of all the clovers he grows, and after subjecting them to a most rigid analysis, I could not make out that there was a single sign of hybridity. I believe all the forms in the market, whether annual or perennial, are only cultivated varieties, produced by careful selection, from one or other natural variety of the Linnæan type without any hybrid intermixture whatever. If none of the commercial forms are truly perennial we must look for the reason not in the plants but in the conditions of their life. By a well-known law of evolution, that of the correlation of parts and characters, nothing in a species can be altered by careful selection without changing some other part or character of the species which perhaps it was not intended or desirable to change. Grasses and clovers selected season after season with a view to growing very early and with a very heavy crop in their first and second seasons exhaust their vitality, lose their perennial character, and soon die out on permanent pasture, where they are eaten off and cannot sow themselves. The seeds of *T. pratense* and *T. repens* as supplied by shops both demonstrate the application of this law; but still it is not a very difficult matter to get a perennial growth of both in permanent pastures *on most* soils.

Before leaving the varieties of the common Red Clover, it may be as well to mention two others which are native in Britain. One is the *parviflorum* of Babington, so rare that we have never met with it in the field. It grows in dry places, and we suppose is a starved state rather than a true variety. It is a form with smaller flowers, stems arched ascending, calyx teeth as long as the tube, often exceeding the corolla, projecting in fruit, and so giving the heads a bristly aspect which does not belong to any of the other varieties. The last variety is the true *perenne* of G. Sinclair, which must not be confounded with the so-called *perenne*, i.e. the *sativum*

January 1897.

of Schreber, of seed catalogues. The root is slightly creeping and extremely fibrous, foliage darker in colour and more hairy than our cultivated kinds. The stipules are terminated with narrower and longer points. The flower-stalks are in general longer and more slender, with an evident disposition to grow bent and flexuous. The heads of flowers are less crowded with florets, although, apparently to the sight, equally as large as the common cultivated clover. When young, the flower-heads have the appearance of extreme woolliness or pubescence. This variety is the most nearly perennial we know, especially in the clayey districts and in soils of a peaty nature. If it were hybridised with *sativum*, valuable results might be expected—a heavy cropping form with creeping fibrous roots, perennial on most soils. The annual Cow-grass, sown in rich garden soil, will stand for years, though it gradually diminishes in time, when in the nearest field it dies away during the second winter. Only quite lately the bacteria-nitrogen theory* may have given us a clue to the reason; time alone will say.

What has just been written of our Clovers forcibly reminds us of the Rye-grass controversy, which has raged and will no doubt rage for years among the unobservant. As a field-botanist and writer of prescriptions for permanent pastures according to the nature of the soil, rainfall and drainage of the ground, our notes may have a little interest for some readers. Our experience is that one variety or another of the Rye-grass is perennial on most soils, but all are certainly an annual on some soils. Of the shop forms some are much more lasting than others—Paceys (*Lolium perenne, ramosum* G. Sinclair)—for instance, but none of them can compete with the native growths of the soil in this respect. I have absolute proof that the Italian variety on some soils will last for years in permanent pasture.† It is the locality, the property of the ground, and not of the species. But why the stoloniferous variety, *Lolium Whitworthiensis* G. Sinclair, is not used for permanent pasture along with *Trifolium medium*, is more than the wit of a mere botanist can guess. Its original observer and introducer, the late G. Whitworth, wrote of it :—
'About 80 acres of rather thin poor wold-land incumbent on chalk,

* 'Journal of the Royal Agricultural Society,' 1896, p. 253.

† This has also been observed by my friend Mr. Thomas Warner, of Leicester Abbey, who has had a wide experience in sowing down varying soils to permanent pasture. Mr. Albert Pell, of Hazelbeach, Northamptonshire, reports the same in the 'Journal of the Royal Agricultural Society,' 1888, p. 127, saying, 'Italian, of course, dies out, but sometimes specimens last four years, perhaps seedlings.' I hardly see how seedlings are possible with his mode of meadowing and depasturing later in the season.

was sown with Whitworth Rye-grass and Clover, the former predominating. In 1819, the first season of grass, the land kept some ewes and lambs until the 1st of May, when it was shut up for mowing. The produce of hay was 54 good waggon-loads, but 30 acres were allowed to stand for seed, the produce being from two to three quarters per acre. The pasture was laid in for about four weeks, then stocked with 500 lambs, which it kept for seven weeks, and afterwards kept 160 lambs, with the help of a little hay given occasionally through the winter, until the beginning of April, when 300 ewes and lambs were put in and did well through the spring months.' The serious objection to this variety of Rye-grass which unfits it for alternate husbandry is its tenacity of life. As there is no distinguishing it from the less permanent varieties by its seeds, mistakes might occur. Two or even three ploughings were necessary to overcome it, or otherwise the roots took up the nourishment of the soil, like Couch, to the great injury to the following wheat crop. The habit of Whitworth Rye-grass indicates an origin from highly situated though rich land. There can be no doubt he discovered it in his own immediate neighbourhood. He used to carry about with him wherever he went, an implement he had invented, made like a gigantic gun wad punch. When he came across a specimen of grass he wished to transplant for study, drawing the foliage through the barrel out of harm's way, he punched out a circular sod, as a cheesemonger does with his cheese. On getting home he cut out a similar sod with his tool from his lawn and inserted the new one, which of course fitted perfectly. In this way by the year 1823 his collection of varieties of *Lolium perenne* L., amounted to the surprising number of 60; so he ought to have been a fair judge of the merits of the one called after him.

Neither the Whitworth Rye Grass, nor *Trifolium medium*, nor the true *T. perenne* of Sinclair are to be bought in the market to-day for permanent pastures. Why is this? Do our seed merchants work by rule of thumb, or is it they cannot see any further than the end of their noses, and so follow one another like a flock of sheep?

NOTES AND NEWS.

It is a pleasure to note that the presidential chair of the Manchester Geological Society is now occupied by so worthy a member as Mr. Mark Stirrup, F.G.S., from whom we have received a reprint of his presidential address delivered on the 10th of November last. As becomes one whose connection with the Society has been officially so intimate, the subject of the address is 'The Early History of the Manchester Geological Society, with some Remarks on Speculative Geology.' The history of the Society is of interest, as it dates back its existence to 1838, and only yields precedence to the Yorkshire Geological and Polytechnic Society, which was established in 1837; and both Societies, so nearly coeval, have done good work ever since for Geology in the North of England.

SOME COCKROACHES FOUND AT BRADFORD.

J. W. CARTER,

Recorder of the Entomological Section, Bradford Naturalists' and Microscopical Society, etc.

A FEW notes upon those 'loathsome insects' which have, from time to time, found their way into our workshops and our kitchens, and there found a congenial habitation, like some intrusive members of the mammalia, may be of interest; and further, may induce others to give us the benefit of their experiences of these unwelcome guests.

Periplaneta orientalis. This, perhaps the most hated of all our domestic pests, swarms not only in many houses, but also in workshops, etc., in company with other species of Cockroach. Its enormous numbers in some places are almost incredible.

Periplaneta americana, so far as I have been able to ascertain, is confined to workshops, particularly dye-houses, where in some cases it is found in great numbers.

Phyllodromia germanica. Some few months ago, Mr. F. Rhodes, M.C.S., gave me a few specimens of this species which he had found in abundance in a Bradford restaurant.

Last week I had sufficient brought me by Mr. W. Leggett, from a warp-sizing place, to fill a pint measure, mixed with a goodly number of their peculiar egg-pouches!! In this place there are thousands upon thousands of this species and *P. orientalis*, and formerly *P. americana* occurred with them, but somehow it seems to have disappeared, at all events it has not been seen lately. Can it be possible that the combined forces of the two smaller species, which have predominance in numbers, have driven out the bigger one? I think not; but am inclined to the opinion that the incessant war waged against *P. americana*, as being the supposed parents of all the smaller ones, partially, if not wholly, accounts for their disappearance.

Blaberus giganteus. About a year ago a very fine example of this monster, a native of the West Indies, and measuring five inches across its expanded wings, was brought me from a place where imported logwood, and other foreign woods, are ground up. It is, as the name implies, a giant in appearance; and no wonder that the captors of it were afraid to handle it. It would be a detestable companion in any workshop.

October 31*st*, 1896.

BIBLIOGRAPHY:

Papers and Records published with respect to the Natural History and Physical Features of the North of England.

LAND AND FRESHWATER MOLLUSCA, 1890 and 1891.

The present instalment has been compiled and edited by

WM. DENISON ROEBUCK, F.L.S.

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For 1884-85, in 'Naturalist,' May 1886, pp. 144-149.
„ 1886-87, „ Aug.-Sept. 1888, pp. 247-263.
„ 1888-89, „ Nov. 1892, pp. 327-335.

The Watsonian vice-counties are adopted throughout these bibliographies as more convenient and uniform in extent than the political counties; those comprised within the North of England are the following:—

53 and 54, Lincoln South and North; 56, Notts.; 57, Derby; 58, Cheshire; 59 and 60, Lancashire South and West; 61, 62, 63, 64 and 65, York South East, North East, South West, Mid West, and North W.; 66, Durham; 67 and 68, Northumberland South and Cheviotland; 69, Westmorland with Furness and Cartmel; 70, Cumberland; and 71, Isle of Man; with their adjoining seas.

ANON. [signed 'W. C. S.']. **York Mid W.**
[Helix lapicida at Thorp Arch on July 7th.] **N. H. J., Oct. 15th, 1890,** p. 132.

ANON. [not signed]. **Cheshire.**
[Excursion of Manchester Conchological Society on Whit-Monday to Marple: *Zonites nitidus*, *Zua*, *Helix concinna*, *H. hispida*, *Clausilia rugosa*, *Z. fulvus*, *Z. nitidulus*, *H. nemoralis*, *H. hortensis*, *H. arbustorum*, *Paludina contecta*, *Pisidium amnicum*, *Physa fontinalis*, *Z. excavatus* and **var.** *vitrina*, *Z. glaber*, *Carychium*, *Vertigo edentula*, *H. aculeata*, *Z. purus*, and *Cl. laminata* noted]. The Conchologist, 24th June, 1891, pp. 28-29.

ANON. [signed 'Yorkshire Post']. **York Mid W., Derbyshire.**
The Conchological Society, Leeds [with notes on thickened examples of *Anodonta cygnea* found by A. H. Pawson in the Old Nidd near Ripley; and *Helix arbustorum* from Winster, Derbyshire (H. E. Milnes)]. The Conch., Sep. 29th, 1891, p. 45.

L. E. ADAMS. **Isle of Man, Derbyshire.**
How Deep do Hibernating Molluscs burrow? [stating winter experience in Isle of Man, and as to *Helix arbustorum* and *H. nemoralis* in Derbyshire]. Sci. Goss., June 1890, p. 132.

L. E. ADAMS. **York S.W.**
[Exhibition of Limax maximus and Arion bourguignati from Penistone, Conch. Soc., Jan. 8th, 1890]. J. of Conch., July 1890, p. 239.

LIONEL E. ADAMS. **Derbyshire.**
Derbyshire from a Conchologist's Point of View [divided geologically into four districts, each of which is considered in detail and numerous species enumerated]. J. of Conch., July 1890, pp. 247-250.

LIONEL E. ADAMS. **York S.W.**

Z[onites]. glaber var. viridula at Penistone [a dead example found at Gunthwaite, April 10th, 1890]. J. of Conch., Oct. 1890, p. 265; Bibl. abst. by T. D. A. Cockerell in Brit. Nat., Jan. 1891, p. 29.

LIONEL E. ADAMS. **York S.W.**

Exhibits [to Conch. Soc.; Vertigo substriata from Gunthwaite near Penistone]. J. of Conch., Oct. 1891, p. 390.

J. BEANLAND. **York Mid W. or S.W.**

Exhibits [to Conch. Soc., Dec. 20th, 1890: Helix nemoralis var. *libellula* (123)(45) *hyalozonata albolabiata* from between Saltaire and Bingley]. J. of Conch., Jan. 1891, p. 310.

J. BEANLAND. **York S.E.**

[Exhibition of Helix cantiana, H. arbustorum, etc., from Wressle; Conch. Soc., 8th Oct., 1890]. J. of Conch., Oct. 1890, p. 276.

C. R. BEAUMONT. **Lanc. S.**

A Ramble Round Daisy Nook [near Oldham; Anodonta cygnea, Unio, *Limnea stagnalis* in the canal noted]. Trans. Rochdale Lit. and Sci. Soc., vol. 2, 1889-90, publ. 1890, p. 67.

W. D. BRAITHWAITE. **York S.W.**

[Notes on Shells found about Ackworth; Anodonta cygnea in Hemsworth Dam, *Unio tumidus* at Went Vale, *Helix virgata* in Went Cutting, *Limnæa stagnalis* at Winterset and Askern]. N.H.J., April 15th, 1891, p. 51.

W. D. B[RAITHWAITE]. **York S.W.**

Ackworth N. H. Excursions [at Hooton Pagnell, Physa hypnorum abundant; extinct at the old Wentbridge locality on its being drained]. N.H.J., Sept. 15th, 1891, p. 105.

J. DARKER BUTTERELL. **York S.E.**

Donations to Collections [of Conch. Soc.: Zonites nitidulus from Withernsea]. J. of Conch., Oct. 1891, p. 397.

R. CAIRNS. **Derbyshire or Cheshire.**

[Additions to list of Marple Shells; Planorbis nitidus and albino *Pl. contortus*]. Manch. Conch. Soc., July 6th, 1891; The Conch., Sep. 29th, 1891, p. 46.

T. D. A. COCKERELL. **Linc. N.**

Fresh-water Shells [found on feet of Newts and Frogs (at Louth) by R. W. Goulding are *Spharium corneum* and not *Cyclas lacustris* as recorded in October number]. Sci. Goss., Nov. **1885**, p. 249.

T. D. A. COCKERELL. **York S.W.**

[Slugs from Lofthouse near Wakefield, found in G. Roberts' garden; *Arion ater* vars. *glauca*, *succinea*, *rufa*, *A. hortensis*, *A. subfuscus*, *A. bourguignati*]. Proc. South Lond. Ent. Soc., 12th May, 1887, publ. **1888**, p. 55.

T. D. A. COCKERELL. **Yorkshire.**

Notes on Geographical Distribution [more especially of Mollusca; with note that writer has seen English specimens collected in Yorkshire of the American var. *speciosa* Zgl. of *Limnæa stagnalis*, of which he notes character]. Sci. Goss., Feb. **1888**, p. 26.

T. D. A. COCKERELL. **Lanc. S., Cumb., York S.W.**

The Variation and Abnormal Development of the Mollusca [Helix *nemoralis* v. *rubella* $0_2 34_5$, Pontefract (G. Roberts); *libellula* $00_3(45)$, Derbyshire (Milnes); *rubella* $00_{34}0$, Pontefract (G. Roberts); *roseozonata-albolabiata* and *citrinozonata-albolabiata*, both from Yorkshire (G. Roberts); *Physa hypnorum* v *intermedia*, Cumberland (Smith); *P. fontinalis* var.

rufula Loc., Cumberland; *Vertigo pygmæa* v. *rubella*, Yorkshire, but somewhat doubtful; *Limnæa peregra* v. *boissii* Dup., Tarleton; and v. *solemia*, Zgl., Southport]. Sci. Goss., Jan. 1890, pp. 4-5.

T. D. A. COCKERELL. **Durham.**

Notes on Slugs, chiefly in the Collection at the British Museum [recording *Amalia carinata* from South Shields (R. Howse) as in the Museum]. Ann. and Mag. Nat. Hist., Oct. 1890, p. 284.

T. D. A. C[OCKERELL]. **York N.E.**

[Pupa anglica var. gunhildæ Wst. recorded from near Scarborough, by Westerlund, in Fauna der in der Palæärctischen Region lebenden Binnenconchylien, vols. 1-7 and Suppl. 1884-1890]. Brit. Nat., Feb. 1891, p. 22.

T. D. A. C[OCKERELL]. **Lanc. S.**

Bibliography. C. A. Westerlund. Faun. Pal. Binn. [noting that two sub-species of *Spharium rivicola* are found in Britain; *S. loire* Bgt., and *S. gallicum* Bgt., both near Manchester]. Brit. Nat., March 1891, p. 60.

T. D. A. COCKERELL. **Cumberland, Notts.**

Specimens received [from Alston, Cumberland, 1,000 feet above sea level, and within half a mile of Northumberland border, sent by A. Belt; *Vitrina*, *Zonites nitidulus*, *Z. cellarius*, *Z. radiatulus*, *Z. alliarius*, *Z. crystallinus*, *Z. fulvus*, *Helix rotundata*, *H. hispida* (variation described), *H. fusca*, *Bulimus obscurus*, *Pupa umbilicata*, *Zua* and var. *hyalina*, *Azeca*, *Limnæa ovata* (described), *Ancylus fluviatilis* and *H. arbustorum* (moderately abundant); three larger *Helices* recorded as absent; *Stenogyra* (*Opeas*) *goodallii*, from Chilwell near Nottingham (particulars given)]. Brit. Nat., April 1891, p. 64.

T. D. A. COCKERELL. **Durham.**

Notes on Slugs, chiefly in the Collection at the British Museum. . . . VI. The Pirainea Section of Amalia [with a record of the British Museum containing *Amalia* (*gagates* subsp.) *plumbea* (Moq.) from South Shields (R. Howse)]. Ann. and Mag. Nat. Hist., April 1891, p. 330.

T. D. A. COCKERELL. **York S.W.**

Notes on Arion hortensis, A. circumscriptus, and their Allies [including description of *A. circumscriptus* form. nov. *atripunctata* found by G. Roberts at Lofthouse, May 1887]. The Conch., Sep. 29th, 1891, p. 34.

E. COLLIER. **York S.E.**

[Exhibition of Limnæa glutinosa from Skidby Drain near Hull, *Bythinia leachii* and *Succinea putris* from Hull; Conch. Soc., 5th March, 1890]. J. of Conch., July 1890, p. 242.

W. E. COLLINGE. **York Mid W.**

[List of] the Land and Freshwater Mollusca of Ingleton, Clapham, and District [enumerating 83 species and 27 varieties, with detailed localities]. Nat., April 1890, pp. 109-114.

W. E. COLLINGE. **York Mid W.**

Fungoid Growth on Limax agrestis [found at Newlay near Leeds; on shrivelled specimens]. Sci. Goss., June 1890, p. 143.

W. E. COLLINGE. **York Mid W.**

How Deep do Hybernating Molluscs Burrow? [discussed in the light of Yorkshire observations on *Helix aspersa*, *H. nemoralis*, *H. hortensis*, *H. arbustorum*, *H. cantiana*, *H. rufescens*, *Zonites nitidulus*, *Cyclostoma* (Wetherby district), *Sphærium corneum*, *S. lacustre*, *Paludina contecta*, *Bythinia tentaculata* and *Limnæa truncatula* (Clapham)]. Sci. Goss., July 1890, p. 164.

W. E. COLLINGE. **York Mid W.**

[Cyclostoma elegans at Thorparch in large numbers; Conch. Soc., June 4th, 1890]. J. of Conch., Oct. 1890, p. 272.

W. E. COLLINGE. **York Mid W.**

Additions to the List of Mollusca of Malham [Pisidium nitidum, *Planorbis carinatus*, *Pl. contortus*, and *Physa hypnorum*, with localities]. Nat., Nov. 1890, p. 335.

W. E. COLLINGE. **York Mid W.**

Observations on Vitrina pellucida [made at Adel and Meanwood near Leeds inter alia]. Zool., Dec. 1890, pp. 467-468.

W. E. COLLINGE. **York S.W.**

Observations on the Burrowing Habits of certain Land and Freshwater Molluscs [with note as to *Anodonta cygnea* at Pudsey, and both *Paludina* and *Bythinia tentaculata* in 'Yorkshire']. Nat., Mch. 1891, pp. 78-79.

H. E. CRAVEN. **Durham.**

[Exhibition of Ancylus fluviatilis var. alba from Gateshead; Conch. Soc., 4th June, 1890]. J. of Conch., Oct. 1890, p. 272.

R. D. DARBISHIRE. **Lanc. S.**

[Helix nemoralis decreasing in number at Southport, noted in] Report on the Testaceous Mollusca of the L[iverpool]. M. B. C. District. First Rep. Fauna of Liverp. Bay, **1886,** p. 234.

J. BURTT DAVY. **Linc. N.**

[Exhibition of Caddis-case from Foss Dyke near Pyewipe House, bearing numerous *Bythinia leachii*, *B. tentaculata*, *Valvata piscinalis*, *Sphærium corneum*, *Physa fontinalis*, *Planorbis vortex*, *Pl. albus*, a *Succinea*, and one *Helix hispida*; also *H. virgata* vars. *subdeleta* and *alba* from Driby; last named attached to inside a broken pheasant-egg; Conch. Soc., 6th Aug., 1890]. J. of Conch., Oct. 1890, p. 275.

J. BURTT DAVY. **Linc. N.**

Donations to Collections [of Conch. Soc.; Limax maximus v. fasciata from Aby, dead *Cyclostoma* from Swaby, *Helix lapicida*, *H. ericetorum*, *H. arbustorum* and *Clausilia rugosa* from South Thoresby]. J. of Conch., Oct. 1891, p. 394.

F. W. FIERKE. **York S.E.**

Notes on the Discovery of Limnæa glutinosa near Hull [given in full detail, with observations on habits and habitat]. J. of Conch., July 1890, pp. 251-253.

F. W. FIERKE. **York S.E.**

Donations to Collection [of Conch. Society: Amphipeplea glutinosa from Skidby Drain at Hull]. J. of Conch., Jan. 1891, p. 306.

F. W. FIERKE. **York Mid W. and S.E.**

Exhibits [to Conch. Society: Zonites radiatulus var. viridescenti-alba from Rombald's Moor near Ilkley, and *Helix nemoralis* v. *rubella* ooooo *roseolabiata* and *H. hortensis* v. *castanea* ooooo from near Hull]. J. of Conch., Jan. 1891, p. 307.

. W. FIERKE. **York Mid W.**

[Mollusca observed by] the Yorkshire Naturalists' Union at Malham and Gordale [Sep. 11th, 1890; *Arion bourguignati*, *Succinea putris*, *Vitrina*, *Zonites cellarius*, *Z. alliarius*, *Z. nitidulus* (new), *Z. crystallinus*, *Helix nemoralis*, *H. rufescens*, *H. hispida*, *H. sericea*, *H. ericetorum*, *H. rotundata*, *H. rupestris*, *H. pulchella* (new), *Pupa umbilicata*, *Clausilia rugosa*, *Cl. dubia* var. *suttoni*, *Zua*, *Sphærium corneum*, *Pisidium pusillum*, *Bythinia tentaculata*, *Valvata piscinalis*, *Planorbis nautileus*, *Pl. albus* (new), *Pl. contortus*, *Physa fontinalis* (new), *Limnæa peregra*, *L. stagnalis* and *Ancylus fluviatilis*, the water shells in the Tarn, and four species marked 'new' being additions to the published list]. Nat., June 1891, pp. 175-176.

F. W. FIERKE. **York S.E.**

Exhibits [to Conch. Soc. ; Limnæa peregra from Riplingham (details given), *Vertigo edentula* and *V. pygmæa* from Speeton ; last also from Drewton Vale ; and named varieties of *Helix hortensis* from Cottingham and of *H. nemoralis* from Burstwick near Hull]. J. of Conch., Oct. 1891, p. 398.

F. W. FRIEKE [sic]. **York S.E.**

[East Riding Shells ; Vertigo edentula and V. pygmæa from Speeton Cliffs ; last-named also from Drenton [sic] Vale ; *Limnæa peregra* swarming in cattle pond absolutely devoid of vegetation, on the Wolds at Riplingham ; *Helix hortensis* var. *castanea* from Cottingham, and *H. nemoralis* var. *hyalozonata roseolabiata* from Burstwick near Hull]. Conch. Soc., Oct. 7th, 1891 ; The Conch., Dec. 24th, 1891, p. 55.

HILDERIC FRIEND. **Cumberland.**

Border Sketches. . . Notes on the Conchology of Cumberland, I. . . Marine Shells [begins with mention of *Helix nemoralis* and *H. caperata* as occurring on the Solway shores]. Young Nat., Ap. 1890, pp. 61-63.

HILDERIC FRIEND. **Cumberland, Westmorland.**

[Exhibition of Bulimus acutus as new to Cumberland, and of Helix *ericetorum* var. *minor* and *H. virgata* vars. *albescens* and *leucozona* from Kendal]. Conch. Soc., Jan. 8th, 1890 ; J. of Conch., July 1890, p. 240.

C. CLARE FRYER. **Derbyshire.**

The Colouring and Banding in Land and Freshwater Shells [with an incidental mention of *Helix lapicida* v. *minor* from Allport, Derbyshire]. Sci. Goss., Nov. 1890, p. 242.

C. CLARE FRYER. **Derbyshire.**

Adventitious Protection in Freshwater Mollusca [as manifested in *Limnea peregra* in the Lathkiln, Derbyshire, a clear stream highly charged with carbonate of lime in solution, the shells being roughly coated with a deposit of it]. The Conchologist, 24th June, 1891, p. 26.

W. GAIN. **Notts.**

Large Unios and Anodons [in Ossington Lake ; giving dimensions of *Anodonta cygnea* and *Unio pictorum*]. Sci. Goss., Jan. **1885**, p. 22.

W. A. GAIN. **Notts.**

Molluscan Captives [giving accounts of Arion ater, A. subfuscus, *A. hortensis*, and *A. minimus* as observed in confinement ; doubtless Notts examples]. Brit. Nat., Oct. 1891, p. 224. [Continuation ; notes on *Limax arborum*, *L. flavus*, *L. lævis*, *H. arbustorum*, *H. cantiana*, *H. virgata*, *Z. nitidulus*, *Arion ater*, *A. minimus*, and *A. subfuscus*, many of them doubtless Notts examples]. Brit. Nat., Nov. 1891, pp. 225-227.

W. A. GAIN. **Notts.**

Power of the Limnidæ [sic] to resist Cold [as observed at Tuxford near Newark ; *Limnæa peregra*, *L. stagnalis*, *Planorbis corneus*, and *Pl. complanatus*, all young, and living on the break-up of the ice, while *Pisidium pusillum* were all dead]. Sci. Goss., May 1891, p. 118.

RICHARD HANITSCH. **Lanc. S.**

Contributions to the Anatomy and History of Limax agrestis [based on examples in an old quarry near Liverpool, near the 'Calderstones' ; habitat stated, and anatomy described]. Proc. Liverp. Biol. Soc., vol. 2, 1887-8, publ. **1888**, pp. 152-170, and plates 10-12.

J. RAY HARDY. **Derbyshire.**

[Exhibition of Zonites fulvus var. mortoni, Vertigo edentula, Helix *aculeata*, and *H. lamellata* from Darley Dale, the last-named being a new record for Derbyshire ; Conch. Soc., 2nd July, 1890]. J. of Conch., Oct. 1890, p. 273.

J. RAY HARDY. **Cheshire.**

[Helix nemoralis from Hoylake, Cheshire]. Manch. Conch. Soc., June 11th, 1891; The Conch., Sep. 29th, 1891, p. 46.

J. A. HARGREAVES. **York N.E.**

[Exhibition of Vertigo pusilla from Forge Valley near Scarborough; Conch. Soc., 2nd July, 1890]. J. of Conch., Oct. 1890, p. 273.

JOHN HAWELL. **Cumberland.**

[Exhibition of Arion subfuscus var. brunnea from Skiddaw Forest, and *Limax arborum* from Brundholme Wood near Keswick; Conch. Soc., 8th Oct., 1890]. J. of Conch., Oct. 1890, p. 276; Bibliog. abst. by T. D. A. Cockerell in Brit. Nat., Jan. 1891, p. 20.

W. HY. HEATHCOTE. **Lanc. S. and W.**

New Shells from Southport [criticising J. W. Williams' note, and mentioning *Amalia marginata*, *Zonites excavatus*, *Z. alliarius*, *H. aspersa*, *H. virgata*, *H. pygmæa*, *Vertigo pygmæa*, *Pupa marginata*, and *Z. nitidulus*, with localities]. The Conchologist, 24th June, 1891, p. 32.

W. H. HEATHCOTE. **Lanc. W. and S.**

Exhibits [to Conch. Soc.: Helix virgata from Rossall Point, Limnæa *peregra* var. *picta* and *Pisidium henslowianum* from Grimsargh Reservoir near Preston; and *Planorbis dilatatus* from canal at Blackburn]. J. of Conch., Oct. 1891, p. 395.

THOS. HEY. **Derbyshire.**

A Derbyshire Ramble [at Little Eaton, 23rd June, 1888; Limnæa *stagnalis*, *L. peregra*, *L. auricularia*, *Paludina vivipara*, *Planorbis complanatus*, *Pl. corneus*, and *Pl. carinatus* all abundant in the canal]. Garner, Sep. 1st, **1888,** p. 194.

THOMAS HEY. **Derbyshire.**

[Exhibition of Derbyshire examples of Limnæa stagnalis and Helix *nemoralis*, to Conch. Soc., Dec. 11th, 1889]. J. of Conch., Jan. 1890, p. 178.

[THOMAS] HEY. **Derbyshire.**

[Fine Limnæa stagnalis with remarkably reflected lip, from Derby]. J. of Conch., July 1891, p. 384.

THOMAS HEY. **Derbyshire.**

[Exhibition of Achatina acicula from Monsal Dale]. Manch. Conch. Soc., June 11th, 1891; The Conch., Sep. 29th, 1891, p. 45.

J. W. HORSLEY. **Lanc. S.**

Notes on Helix nemoralis and H. hortensis [mentioning that the former abounds on sand hills, as near Liverpool]. Brit. Nat., July 1891, p. 17.

BAKER HUDSON. **York N.E.**

The Yorkshire Naturalists' Union at Kildale-in-Cleveland [12th July, 1890; *Arion ater*, *A. hortensis*, *A. bourguignati*, *Limax agrestis*, *L. maximus*, *L. arborum*, *L. cinereo-niger*, *Vitrina*, *Zonites cellarius*, *Z. alliarius*, *Z. nitidulus*, *Z. purus* and var. *margaritacea*, *Z. fulvus*, *Z. crystallinus*, *Helix lamellata*, *H. nemoralis*, *H. arbustorum*, *H. sericea*, *H. fusca*, *H. rotundata*, *H. pygmæa*, *Pupa umbilicata*, *P. ringens*, *Vertigo edentula*, *Clausilia rugosa*, *Cl. laminata*, *Zua*, *Azeca*, *Carychium* noted in Kildale Woods; seven of them also at Ingleby Greenhow, together with *Helix aspersa*, *Bulimus obscurus*, and *Arion subfuscus*]. Nat., Sep. 1890, pp. 269-272.

HENRY HYDE. **Cheshire.**

[Anodonta cygnea, seven inches long, from a pond at Baguley]. Manch. Conch. Soc., Sep. 3rd, 1891; The Conch., Dec. 24th, 1891, p. 56.

H. WALLIS KEW. **Linc. N.**

Reminiscences of Ten Summers [at Louth; noting occurrence of *Carychium* and *Helix pygmæa* in abundance on beech leaves]. Garner, March 1st, **1888**, p. 93.

H. WALLIS KEW. **Linc. N., Lanc. S., Notts.**

The Faculty of Homing in Gastropods [discussed, and exemplified by observations made near Louth on *Limax flavus*, *L. maximus*, *Arion ater*, at Swinton on *L. maximus* and *Helix aspersa*, at Manchester on *L. flavus*, and at Tuxford on *L. arborum* and *L. flavus*]. Nat., Oct. 1890, pp. 307-318.

M. KNIGHT. **Derbyshire.**

[Five Varieties of Helix nemoralis found in Derbyshire]. N.H.J., Sep. 15th, 1891, p. 107.

W. M. LAURENCE. **Lanc. S.**

[Large Anodonta cygnea in Penketh district, near Warrington]. N.H.J., April 15th, 1890, p. 50.

W. M. LAURENCE. **Derbyshire.**

Penketh School Field Club [in Cressbrook, Monsall and Miller's Dales; *Helix virgata*, *H. lapicida*, *H. caperata*, *H. hispida*, and *Clausilia laminata* noted]. N.H.J., June 15th, 1890, p. 91.

B. B. L[E].T[ALL]. **York Mid W. or S.E.**

[Helix arbustorum near Naburn on Aug. 29th, 1890]. N.H.J., Oct. 15th, 1890, p. 132.

T. A. LOFTHOUSE AND W. DENISON ROEBUCK. **York N.E.**

[Mollusca observed by] The Yorkshire Naturalists' Union at Hayburn Wyke [on July 11th, 1891; *Helix aspersa*, *H. nemoralis*, *H. caperata*, *H. rotundata*, *Zonites nitidulus*, *H. virgata*, *H. sericea*, *Limnæa peregra*, *Vitrina*, *Succinea putris*, *Z. cellarius*, *Z. alliarius*, *Z. purus*, *Z. crystallinus*, *Z. fulvus*, *Pupa umbilicata*, *Vertigo edentula*, *Carychium*, *Limax arborum* v. *nemorosa*, *Clausilia rugosa*, *Bulimus obscurus*, *Helix hispida*, *Limax agrestis*, *Arion ater*, *A. minimus*, *A. bourguignati*, *Limnæa truncatula*, *H. arbustorum*, *Pupa ringens*, and *Ancylus lacustris* noted as taken, with details as to localities, etc.]. Nat., Oct. 1891, p. 289.

FRANCIS C. LONG. **Lanc. S.**

A Burnley Pond [containing Sphærium lacustre, Valvata piscinalis, *Planorbis albus*, and *Limnæa peregra* in abundance, *Pl. nitidus* and *Pl. glaber* moderately plentiful, a few *Sph. corneum*, and *Pl. dilatatus* very plentiful and fine]. Nat. World, July **1887**, p. 130.

FRANCIS C. LONG. **Lanc. S.**

Cochlicopa tridens var. crystallina [on the Whalley Road at Read near Burnley, three found June 4th, 1887; new for Lancashire; type also found there, and *Zua*, *Helix nemoralis*, *H. arbustorum* and var. *pallida*, *H. rufescens* and var. *alba*, *Hyalinia cellaria*, *H. alliaria*, *H. fulva*, *H. nitidula*, *H. glabra*, *Vitrina*, *Bulimus obscurus* and *Carychium*]. Nat. World, July **1887**, p. 131.

E. J. LOWE. **Notts.**

Slugs and Frost [with observations on Limax lævis at Highfield House near Nottingham in the great frost of 1860-61]. The Conchologist, 25th March 1891, pp. 4-5.

E. J. LOWE. **Notts.**

Slugs and Frost [recording Behaviour of Arion ater, Limax flavus, *L. maximus*, *L. lævis*, *L. agrestis*, *Amalia marginata*, and *Helix aspersa* at Highfield House, near Nottingham, in the severe frost of 1860-61]. Midl. Nat., June 1891, pp. 134-135.

J. MADISON. **York S.E. and Mid W.**

[Exhibition of Limnæa stagnalis var. turgida from Osmondthorpe Park, and *Limnea glutinosa* from Hull]. Midl. Nat., Sep. 1890, p. 214.

R. T. MANSON. **Durham.**

Zig-Zag Ramblings by a Naturalist [round Darlington; notes re *Arion ater* (p. 21), *Anodonta cygnea* in the Skerne (p. 22), *Ancylus fluviatilis* at Harperley Park, *Limnæa auricularia* in the Skerne (p. 24), *Planorbis*

nitidus in 'Our Park' (p. 69); at pp. 138-139 are enumerated, with localities, 31 species of land and freshwater mollusca found near Darlington]. Small 8vo, Darlington, 1884.

J. EARDLEY MASON. **Linc. N.**

[Zonites fulvus from Alford, sent for exhibition; Conch. Soc., June 4th, 1890]. J. of Conch., Oct. 1890, p. 272.

W. A. MAW. **'York.'**

[Cochlicopa lubrica and Limnæa truncatula in the Ouse flood]. N.H.J., April 15th, 1891, p. 53.

H. MILNES. **Derbyshire.**

Helix hortensis v. lutea 12045 at Dovedale [in Autumn 1890]. J. of Conch., April 1891, p. 344.

HERBERT MILNES. **Derbyshire, York N.E.**

Exhibits [to Conch. Soc.; Helix arbustorum from Winster, Derbyshire, with vars. *cincta* and *flavescens*, one of the latter showing at the mouth three beginnings of bands, scalariform *Helix arbustorum*, and *Limnæa truncatula* from Winster, Derbyshire; and *Sphærium lacustre* from Filey]. J. of Conch., Oct. 1891, pp. 393, 394, 396.

H. MILNES. **Derbyshire.**

[Scalariform Helix arbustorum from Derbyshire]. Conch. Soc., Sep. 2, 1891; The Conch., Dec. 24th, 1891, p. 55.

W. MOSS AND R. CAIRNS. **Cheshire or Derbyshire.**

[Unio pictorum and its variation in the canal at Marple, where also occur *U. tumidus*, *Paludina vivipara*, *Pisidium amnicum*, *Anodonta anatina*, **and** *A. cygnea*]. Manch. Conch. Soc., June 11th, 1891; The Conch., Sep. 29th, 1891, p. 45.

W. MOSS. **Derbyshire.**

[Varieties of Helix nemoralis and H. arbustorum, from Dovedale, Derbyshire]. Manch. Conch. Soc., July 6th, 1891; The Conch., Sep. 29th, 1891, p. 46.

[W.] MOSS. **York Mid W.**

[Finding of Vertigo pygmæa abundantly in a quarry at Beerley [sic] near Ingleton]. Manch. Conch. Soc., Sep. 3rd, 1891; The Conch., Dec. 24th, 1891, p. 56.

W. MOSS AND R. CAIRNS. **Isle of Man.**

[Manx examples of Helix nemoralis, and of reversed and scalariform *H. aspersa*]. Manch. Conch. Soc., Sep. 3rd, 1891; The Conch., Dec. 24th, 1891, p. 56.

CHAS. T. MUSSON. **Notts.**

Large Unios and Anodons in Nottinghamshire [giving dimensions of large numbers taken of *Anodonta cygnea* at Sutton-in-Ashfield, as well as of *Unio pictorum* at Ossington Lake]. Sci. Goss., Jan. 1885, p. 22.

WM. NELSON. **York Mid W.**

Mollusca near Spofforth, Yorkshire [28th September, 1889; details given of capture of *Planorbis contortus*, *Limnæa peregra*, *L. palustris*, *Pl. marginatus*, *L. stagnalis*, *Sphærium corneum*, *Physa fontinalis*, *Pl. albus*, *Zonites cellarius*, *Z. alliarius*, *Z. glaber*, *Helix hortensis*, *H. hispida*? *H. rotundata*, *Pupa umbilicata*, and *Clausilia rugosa*]. Nat., Feb. 1890, p. 44.

W. NELSON. **York S.E. and Mid W.**

[Exhibition of a very large Limnæa glutinosa, and of Planorbis *corneus*, *L. ovata*, *Sphærium corneum*, and *Valvata piscinalis* from Skidby Drain, Hull, and *Helix nemoralis* from Primrose Valley, Leeds; *Limnæa stagnalis* var. *expansilabris* from Osmondthorpe near Leeds; Conch. Soc., April 2nd, 1890]. J. of Conch., July 1890, p. 243.

WILLIAM NELSON. **York Mid W.**

[Exhibition of Sphærium lacustre from a pond between Scarcroft and Seacroft ; Conch. Soc., 6th August, 1890]. J. of Conch., Oct. 1890, p. 274.

WM. NELSON. **Yorkshire.**

Exhibits [to Conch. Soc., Dec. 20th, 1890 : malformations of Limnæa *peregra* from Allerton Ings, near Castleford]. J. of Conch., Jan. 1891, p. 310.

WM. NELSON. **York N.W.**

[Mollusca observed by] The Yorkshire Naturalists' Union at Leckby Carr [on May 18th, 1891 ; *Helix cantiana*, *H. hispida*, *H. hortensis*, *Zonites cellarius*, *Z. alliarius* and var. *viridula*, *Z. nitidulus*, *Z. purus*, *Vitrina*, *Arion minimus*, *A. bourguignati*, *Limnæa peregra*, *Planorbis spirorbis*, *Pisidium pusillum*, *Bythinia tentaculata*, *Planorbis umbilicatus*, *Limax maximus*, *H. aspersa*, *H. rotundata*, *Physa hypnorum*, *Planorbis contortus*, *Pis. fontinale*, noted, four being additional to N.W. Yorkshire]. Nat., Aug. 1891, pp. 234-235, and 240.

WILLIAM NELSON. **York Mid W.**

[Mollusca observed by] the Yorkshire Naturalists' Union at Grassington [on June 20th, 1891 ; *Limax agrestis* var. *lilacina*, *Zonites nitidulus*, *Helix rufescens*, *H. rotundata*, *Clausilia rugosa*, *Limnæa peregra*, *H. lapicida*, *Vitrina*, *Z. cellarius*, *Z. purus*, *Z. fulvus*, *Z. crystallinus*, *Z. glaber*, *Z. alliarius*, *Z. radiatulus*, *Bulimus obscurus*, *Pupa umbilicata*, *Vertigo edentula*, *Cl. laminata*, *Azeca*, *Zua*, *Carychium*, *H. nemoralis*, *H. arbustorum*, *Succinea putris*, *Ancylus fluviatilis*, *Cyclostoma*, *H. ericetorum*, *Pisidium fontinale* (at Hebden), *H. concinna*, *H. rupestris* noted ; *Vertigo edentula* and *Z. purus* being new to this part of Wharfedale]. Nat., Sep. 1891, pp. 268-270.

WILLIAM NELSON. **York S.W.**

Extracts from a Conchologist's Note-Book [anent journeys to Batley and to Havercroft Green in successful search for *Limnæa glabra* ; *Ancylus fluviatilis* at Woodchurch, *Zonites alliarius*, *Z. excavatus*, *Helix aculeata*, *H. hispida*, *H. rotundata*, and *Z. radiatulus* at Haw Park, and *Pisidium pusillum* at Havercroft Green also noted]. Nat., Sep. 1891, pp. 273-274.

A. M. NORMAN. **York Mid W., S.E., S.W., Durham, Lanc. W., Westmorland, Cheshire.**

Revision of British Mollusca. . . Order IV. Pulmonata [repeats the Allansford record of *Limax tenellus* ; *Amalia gagates* in several Durham localities, including Burnmoor Rectory garden ; *Zonites glaber*, Preston, 1837, Marple, Cheshire, and Grasmere ; *Helix nemoralis* var. *albolabiata*, Scarborough (Bean and Leckenby) ; *Pupa umbilicata* var. *sempronii*, Penyghent ; *P. secale* near Ingleton ; *P. marginata* var. *edentula*, Brough ; *Vertigo pygmæa* v. *quadridentata*, Dirtcar, near Wakefield (J. W. Taylor) ; *Azeca tridens* m. *sinistrorsum* at Boston Spa (Emmet) ; *Succinea stagnalis* Gass., Grassmere (Jeffreys), var. *jeffreysi* Baudon, Grassmere ; *Planorbis dilatatus*, Bolton Canal at Pendleton and Galton [sic] (Thos. Rogers)]. Ann. and Mag. N.H., Oct. 1890, pp. 327-341.

[CHARLES] OLDHAM. **Derbyshire.**

[Photographs of Helix arbustorum var. flavescens monst. sinistrorsum taken in 1887 at Ashwood Dale near Buxton]. Proc. South Lond. Ent. Soc., Oct. 13th, 1887, pub. 1888, p. 79.

CHARLES OLDHAM. **Derbyshire.**

[Exhibition of Helix arbustorum v. cincta from Castleton, the bands on which were as sharply and distinctly defined as those of *H. nemoralis* usually are ; Conch. Soc., 8th Oct. 1890]. J. of Conch., Oct. 1890, p. 276.

CHAS. OLDHAM. **Derbyshire.**

Exhibits [to Conch. Soc., Nov. 5th, 1890 : Helix arbustorum with vars. *alpestris* and *flavescens*, from Miller's Dale]. J. of Conch., Jan. 1891, p. 307.

CHARLES OLDHAM. **York S.W**

[Fine Pisidium pusillum from Penistone]. Manch. Conch. Soc., July 6th, 1891 ; The Conch., Sep. 29th, 1891, p. 46.

CHARLES OLDHAM. **Cheshire, Durham, Northumberland S.**

Exhibits [to Conch. Soc. : Pisidium fontinale and P. pusillum from Marston, *P. nitidum* from Jesmond near Newcastle, *P. roseum* from Budworth Mere, *P. pusillum* from Swalwell near Gateshead]. J. of Conch., Oct. 1891, p. 396.

ALBERT H. PAWSON. **York Mid W.**

Donations to Collections [of Conch. Soc. : Anodonta cygnea from the Old Nidd stream, Ripley]. J. of Conch., Oct. 1891, p. 393.

ALEYN LYELL READE. **Lanc. S.**

Donations to Collections [of Conch. Soc. : Limnæa stagnalis, L. peregra, *Sphærium corneum*, *Planorbis spirorbis*, from a freshwater deposit near the Alt mouth, discovered Nov. 1st, 1885]. J. of Conch., Oct. 1891, p. 389.

F. RHODES. **York Mid W. and S.W.**

How Deep do Hybernating Mollusca Bury ? [observations made about Calverley, Apperley, Bramley, and Esholt, upon *Helix nemoralis*, *H. virgata*, *H. arbustorum*, *H. rotundata*, *H. rufescens*, *H. hortensis*, *Zonites glaber*, *Z. alliarius*, *Z. purus*, *Z. excavatus*, *Z. nitidus*, *Limax maximus*, *Arion bourguignati*, *A. subfuscus*, *Vitrina*, and *Anodonta cygnea* (Pudsey)]. Sci. Goss., Aug. 1890, p. 189.

FREDERICK RHODES. **York Mid W.**

Donations to Collection [of Conchol. Soc. : Zonites cellarius v. albinos from Collingham (misprinted Cottingham), and an exotic *Stenogyra* from Ferniehurst, Shipley]. J. of Conch., Jan. 1891, p. 309.

GEORGE ROBERTS. **Linc. N.**

Trent Shells [from sand dredged above Gainsborough, were obtained *Sphærium rivicola*, *Paludina vivipara*, *Anodonta cygnea*, *A. anotina*, *Unio pictorum* and *U. tumidus*, and a couple of varieties each of the two latter]. Nat., March 1890, p. 94.

GEO. ROBERTS. **York Mid W.**

Subfossil Shells [found in Bishop's Dyke, near Sherburn, Sep. 9th, 1887 ; seven species of *Planorbis*, three of *Limnæa*, two of *Anodonta*, *Bythinia tentaculata*, two of *Valvata*, *Pisidium amnicum*, *Sphærium corneum*, and two of *Succinea* noted]. Brit. Nat., Jan. 1891, p. 18.

GEO. ROBERTS. **York S.W.**

Shells near Doncaster [all in or by one pond at Adwick, June 16th, 1887 *Succinea putris*, *S. elegans* v. *minor*, *Limnea peregra*, *L. truncatula* and v. *elegans*, *L. palustris* and vs. *albida* (2), *tincta* (several) and *lacunosa*, *Bythinia tentaculata*, *Physa hypnorum*, *Planorbis spirorbis* and monst. *scalariforme*, *P. complanatus* and v. *rhombea*, *P. vortex*, *Limnea glabra*, *Pisidium* (two species) and *Helix nemoralis*]. Brit. Nat., Feb. 1891, p. 23.

W. DENISON ROEBUCK. **Linc. N. and S.**

[Lincolnshire shells exhibited to Conch. Soc., Oct. 2nd, 1889 ; Clausilia *rolphii*, *Helix lapicida*, *Vertigo edentula*, *Pupa marginata*]. J. of Conch., Jan. 1890, p. 177.

W. DENISON ROEBUCK. **Cumberland.**

Possible Occurrence of Bulimus acutus in Cumberland [a couple taken by Hilderic Friend, thought to be at Silloth]. Nat., Feb. 1890, p. 44.

W. DENISON ROEBUCK. **Linc. N.**

[Exhibition of Bulimus obscurus from Well Vale, sent by J. E. Mason ; Conch. Soc., Jan. 8th, 1890]. J. of Conch., July 1890, p. 240.

W. DENISON ROEBUCK. **York N.W.**

Conchological Field-Notes from Upper Swaledale, N.W. Yorkshire [being an annotated list of 2 aquatic shells, 7 slugs, 26 land shells—35 in all, with details of localities, found above Grinton and Fremington and to the dale-head ; an introduction dealing with the district ; and the list is followed by records of captives about Richmond and in Lower Swaledale, which raise the total Swale basin list to 44 species]. Nat., Aug. 1890, pp. 229-233.

W. DENISON ROEBUCK. **York S.W.**

[Mollusca observed by] the Yorkshire Naturalists' Union at Bretton Park [Bullcliffe Wood, Crigglestone and Coxley Valley, 14th June, 1890 ; *Planorbis albus*, *Pisidium*, *Limnæa peregra*, *Limax agrestis*, *Arion ater*, *A. hortensis*, *A. bourguignati*, *Azeca*, *Zonites excavatus*, *Succinea putris*, *Z. cellarius*, *Z. fulvus*, *Helix nemoralis*, *H. rufescens*, *Clausilia rugosa*, *H. rotundata* and *Z. alliarius* found]. Nat., Aug. 1890, p. 225.

W. DENISON ROEBUCK. **York Mid W.**

The Conchology of Malham [being a list of 41 species, being 3 slugs, 26 terrestrial and 12 fluviatile shells, with localities and names of collectors, with some preliminary remarks on the district]. Nat., Sep. 1890, pp. 263-267.

W. DENISON ROEBUCK. **York N.E., N.W., Mid W., and S.W., Linc. N., Chesh., Notts, Westmorland.**

Arion minimus (Simroth) a British Slug [noting as an appendix to R. F. Scharff's article that this form has occurred in the counties cited above, but not giving any details]. J. of Conch., Oct. 1890, p. 269.

W. DENISON ROEBUCK. **York S.E. and N.W., Linc. N.**

[Exhibition of Bulimus obscurus from Ruston Parva ; Conch. Soc., 4th June, 1890 ; *Clausilia rolphii* from a new locality, Well Vale near Alford, where it was collected by J. B. Davy along with *Cyclostoma* and *Helix lapicida* ; Conch. Soc., 2nd July, 1890 ; and *Clausilia rugosa* var. *erasa* from a tree trunk near Hardraw Foss ; Conch. Soc., 6th August, 1890]. J. of Conch., Oct. 1890, pp. 272, 273, and 275 ; Bibliog. abstract by T. D. A. Cockerell in Brit. Nat., Jan. 1891, p. 19.

W. DENISON ROEBUCK. **York N.W.**

[Mollusca observed by] The Yorkshire Naturalists' Union in Upper Swaledale (August 2nd to 4th, 1890 ; noting *Arion ater*, *A. hortensis*, *A. bourguignati*, *Limax agrestis*, *Vitrina*, *Zonites cellarius*, *Z. alliarius*, *Z. glaber*, *Z. nitidulus*, *Z. purus*, *Z. crystallinus*, *Helix arbustorum*, *H. rufescens*, *H. hispida*, *H. sericea*, *H. rotundata*, *H. rupestris*, *Balea*, *Clausilia rugosa*, *Cl. dubia*, *Cl. laminata*, *Azeca*, *Zua*, *Limnæa truncatula* and var. *minor*, as taken around Keld and Kisdon]. Nat., July 1891, p. 202.

W. DENISON ROEBUCK. **York S.E.**

Exhibits [to Conch. Soc. : Zonites radiatulatus, Helix ericetorum, *H. virgata*, York Dale, near Sledmere]. J. of Conch., Oct. 1891, p. 395.

W. DENISON ROEBUCK. **York S.W.**

[Mollusca observed by] the Yorkshire Naturalists' Union in Edlington and Wadworth Woods [near Doncaster, 16th and 17th Sept., 1891 ; *Helix hispida*, *H. rotundata*, *H. aspersa*, *H. nemoralis*, *H. cantiana*, *Zua*, *Clausilia rugosa*, *Pupa umbilicata*, *Vitrina*, *Zonites cellarius*, *Z. alliarius*, *Z. nitidulus*, *Z. fulvus*, *Z. purus* var. *margaritacea*, *Z. crystallinus*, *Arion ater*, *A. hortensis*, *A. bourguignati*, *A. minimus*, *Limax agrestis*, *Limnæa peregra* and *Anodonta cygnea*]. Nat., Nov. 1891, p. 334.

L. B. ROSS. **York S.E.**

[Mollusca observed by] the Yorkshire Naturalists' Union at Lowthorpe near Driffield [26th May 1890; *Ancylus fluviatilis* in thousands, *Pisidium pusillum*, *P. cinereum*, *Valvata* (both species), *Physa fontinalis*, *Planorbis contortus*, *Arion bourguignati*, *Limax maximus*, *L. agrestis*, *Zonites cellarius*,

Z. alliarius, *Z. fulvus*, *Z. nitidulus*, *Z. crystallinus*, *Helix nemoralis*, *H. aspersa*, *H. hispida*, *H. rufescens*, *H. cantiana*, *Vitrina*, *Bulimus obscurus*, *Carychium*, and *Zua*. In Mortimer's Museum were seen *Helix nemoralis*, *H. arbustorum*, *Succinea putris*, *and Achatina*, all from barrows on the Yorkshire Wolds]. Nat., July 1890, pp. 206-207.

LEWIS B. ROSS. **York S.E.**

[Mollusca observed by] the Yorkshire Naturalists' Union on the Wolds [at York Dale and Sledmere, 3rd Aug. 1891; *Helix ericetorum*, *H. virgata*, *H. rotundata*, *Limnæa peregra*, *Clausilia laminata*, *H. arbustorum* and vars., *Limax agrestis*, *L. arborum*, *Arion ater*, *A. hortensis*, *Bulimus obscurus*, *Vitrina*, *Zua*, *H. aculeata*, *H. pygmæa*, *Carychium*, *Vertigo edentula*, *Zonites fulvus*, *Z. cellarius*, *Z. alliarius*, *H. hispida*, *H. sericea*, *H. cantiana*, *H. aspersa*, *H. hortensis*, *H. nemoralis*, *Z. nitidulus*, *Z. crystallinus*, *H. rufescens*. *Arion minimus*, *A. bourguignati*, and *Limax maximus*]. Nat., Oct. 1891, p. 302.

R. F. SCHARFF. **York Mid W. and S.W.**

Arion minimus (Simroth) a British Slug [found in Lister Park, Bradford, and in Bolton Woods, near Ilkley]. J. of Conch., Oct. 1890, pp. 267-269.

J. C. SMITH. **Cumberland, Westmorland.**

Donations to Collections [of Conch. Soc.: Clausilia laminata from Edenhall, Cumberland; *Unio margaritifer* from river Lowther, Westmorland; *Anodonta cygnea* from Great Salkeld, Cumberland]. J. of Conch., Oct. 1891, pp. 390-1; The Conchologist, June 24th, 1891, p. 28.

H. T. SOPPITT. **York S.W.**

Exhibits [to Conch. Soc., Dec. 20th, 1890: Testacella haliotidea from Ferniehurst, Shipley; details given]. J. of Conch., Jan. 1891, p. 310.

R. STANDEN. **Lanc. S. and W., Cheshire.**

Notes on the Occurrence of Acme lineata Drap., in Lancashire and Cheshire [details of its habitats at Barlow Moor Wood with *Carychium*, etc., at Clifton, near Manchester with *Zonites excavatus*, at Marple and at Fleetwood along with *Helix aculeata*, *H. hispida*, *H. pygmæa*, *Vitrina*, *Zonites glaber*, *Z. alliarius*, *Z. nitidulus*, *Z. purus*, *Z. radiatulus*, *Z. fulvus*, *Z. crystallinus*, *Z. cellarius*, *Zua*, *Carychium*, both *Succineæ*, *Limnæa truncatula*, *Pisidium nitidum*, *Vertigo pygmæa*, and *Helix pulchella* at Preston (record unsatisfactory) and at Blacon Point, Cheshire (ditto)]. J. of Conch., Jan. 1890, pp. 161-164.

R. STANDEN. **Lanc. S.**

Sinistral Helix nemoralis in Lancashire [found near Burnley by F. C. Long: var. *libellula* 12345]. J. of Conch., Jan. 1890, p. 175.

R. STANDEN. **Lanc. S.**

Helix aspersa monst. sinistrorsum Taylor, in Lancashire [at Whalley; details given]. J. of Conch., Jan. 1890, p. 176.

ROBERT STANDEN. **Chesh., Lanc. S., York Mid W. and S.E.**

[Exhibition of Pisidium fontinale and P. roseum from Birkenhead, *P. cinereum* from Liverpool, *Sphærium corneum* var. *complanata* from Cass Canal, Hollinwood, large var. *nucleus* from Askham Bog, very oblong and flattish *S. ovale* from canal at Hollinwood, and *Helix arbustorum* from Pocklington; Conch. Soc., 4th June, 1890]. J. of Conch., Oct. 1890, p. 272.

R. STANDEN. **Derbyshire, Chesh., Lanc. W. and S., York Mid W.**

Report of the Manchester Branch [of Conch. Soc.; Helix lamellata at Darley Dale, *Cyclostoma* at Silverdale, *Vertigo substriata* at Helks Wood, Ingleton, *V. pygmæa* at Clitheroe, *Testacella scutulum* at Sale, *Pisidium roseum* and *P. nitidum* at Birkenhead and Liverpool, *Sphærium lacustre* v. *ryckholtii* near Liverpool, *Limnæa auricularia* and v. *albida* at Levenshulme near Manchester, and *Bulimus acutus* at Leasowe, Cheshire, and Rossall, Lancs.]. J. of Conch., Jan. 1891, p. 314.

R. STANDEN. **Lanc. W. & S.**

[Testacella scutulum and its occurrence at Foston (? Forton), Lancs., taken by W. H. Heathcote ; reference also made to former records of *Testacella* at Crumpsall many years ago, and at Red Scar near Preston, 1878]. Manch. Conch. Soc., June 11th, 1891 ; The Conch., Sep. 29th, 1891, p. 45.

[R.] STANDEN. **Cheshire.**

[Report of Excursion to Lostock Gralam, June 20th, 1891 ; noting capture of *Sphærium lacustre*, *Limnæa auricularia*, *Planorbis nitidus*, *Zonites nitidus*, *Z. fulvus*, *Succinea putris*, and albino *Helix rotundata*]. Manch. Conch. Soc., July 6th, 1891 ; The Conch., Sep. 29th, 1891, p. 46.

[ROBERT] STANDEN. **Derbyshire.**

[Report of Manchester Conch. Soc. Excursions, to the Peak Forest Canal, July 18th, and to Lathkill Dale in August ; noting *Sphærium rivicola*, *S. ovale*, *Zonites nitidus* and *Z. excavatus* in or beside the canal, and *Helix nemoralis*, *H. arbustorum*, *H. lapicida*, *H. ericetorum*, *H. rupestris*, *H. aculeata*, *H. pygmæa*, *Carychium*, *Clausilia laminata*, and *Vertigo edentula* at Lathkill Dale]. The Conch., Dec. 24th, 1891, p. 56.

R. A. SUMMERFIELD. **York Mid W.**

Donations to Collections [of Conch. Soc. : Limnæa stagnalis, Planorbis *carinatus*, and *Bythinia tentaculata*, found in cleaning out an old pond at North Stainley near Ripon]. J. of Conch., Oct. 1891, p. 394.

T. TALBOT [teste index]. **Isle of Man.**

On the Mollusca of the Isle of Man [based on the writings of Edward Forbes, whose records are repeated in parallel columns, one devoted to those from the 'Malac. Monensis' (1838) and the other to 'Forbes and Hanley' (1848-53) ; notices of other papers are given in the prefatory matter, with a dissertation on *Unio margaritiferus* ; the list includes 44 terrestrial and fluviatile species]. Trans. I. of Man N.H.S., vol. i., 1879-84, publ. 1888, pp. 28-50.

J. W. TAYLOR. **Linc. N.**

[Exhibition of Planorbis lineatus from Scotter Common, sent by F. W. Fierke ; Conch. Soc., 7th May, 1890]. J. of Conch., July 1890, p. 243.

JOHN W. TAYLOR. **York S.W., Furness, Westmlnd., Durham, Lanc. S.**

The Variation of Limnæa peregra (Müll.) [discussed at length, the type defined and the principal varieties described ; specimens collected in the counties specified being figured or referred to]. J. of Conch., Oct. 1890 and Jan. 1891, pp. 284-306.

J. W. TAYLOR. **Derbyshire, York N.E.**

[Exhibition of Limnæa truncatula from Winster, Derbyshire, and *Sphærium ovale* from Blue Bridge, York]. Conch. Soc. ; The Conch., 24th June, 1891, p. 28.

J. W. TAYLOR. **York Mid W., Lanc. S.**

Helix arbustorum var. canigonensis Boubeé [at Bishopthorpe near York (J. E. Morland), Bell Busk (J. Madison), and Clitheroe (R. Wigglesworth)]. J. of Conch., July 1891, p. 360.

JOHN W. TAYLOR. **York S.W., Lanc. W.**

Exhibits [to Conch. Soc., March 4th, 1891 ; Limnæa auricularia var. *reflexa* from the Huddersfield Canal, and var. *acutalis* from Newsham near Preston]. J. of Conch., Oct. 1891, p. 388.

J. W. TAYLOR. **Lanc. S.**

Donations to Collections [of Conch. Soc. ; large Limnæa auricularia from reservoir at Levenshulme near Manchester, coll. 20. vi. '90, R. Standen]. J. of Conch., Oct. 1891, p. 389.

JOHN W. TAYLOR. **Derbyshire, York Mid W. and N.E.**

Exhibits [to Conch. Soc.: Sphærium ovale from Blue Bridge, York (W. C. Hey); *Helix arbustorum* v. *luteofasciata* D. & M., from Matlock (H. E. Craven), and v. *canigonensis* Boubeé, from Bishopthorpe near York (J. E. Morland); *H. lapicida* var. *subangulata* Pasc. from Dovedale (C. T. Musson); *Limnæa truncatula* var. from Winster, Derbyshire (H. Milnes)]. J. of Conch., Oct. 1891, pp. 391.

J. W. TAYLOR. **Derbyshire.**

Helix lapicida v. subangulata Pascal [found in Dovedale by C. T. Musson; now in writer's collection]. J. of Conch., Oct. 1891, p. 422.

FRANK TURTON. **York S.W.**

Exhibits [to Conch. Soc.: distorted Limnæa peregra from Gunthwaite]. J. of Conch., Oct. 1891, p. 390.

EDGAR R. WAITE. **York Mid W.**

Exhibits [to Conch. Soc.: Testacella scutulum from Headingley, with notes]. J. of Conch., Oct. 1891, p. 398.

EDGAR R. WAITE. **York Mid W.**

[Testacella scutulum found at Headingley; Beverley and Boston Spa *Testacellæ* also referred to]. Conch. Soc., Oct. 7th, 1891; The Conch., Dec. 24th, 1891, p. 55.

W. WEST. **York N.E.**

[Exhibition of Balea and Bulimus obscurus from between Seamer and Scarborough; Conch. Soc., 8th Oct., 1890]. J. of Conch., Oct. 1890, p. 275.

R. WIGGLESWORTH. **Lanc. S.**

Banded Cochlicopa Lubrica [found at Clayton-le-Moors, Oct. 3rd: of the ovate form of the species; description given, but no name]. Sci. Goss., Nov. 1890, p. 263.

R. WIGGLESWORTH. **Lanc. S.**

Re Helix Hortensis, var. Trochoidea (Clessin) [in correction of locality; Simonstone, Lanc., not Clayton-le-Moors, as stated by Williams]. Sci. Goss., Nov. 1890, p. 263.

R. WIGGLESWORTH. **Lanc. S. and W.**

Exhibits [to Conch. Soc.: Helix arbustorum from Simonstone and Clitheroe; *H. hortensis* from Altham]. J. of Conch., Oct. 1891, p. 397.

R. WIGGLESWORTH. **Lanc. S.**

[Varieties of Helix arbustorum and H. hortensis from Lancashire]. Conch. Soc., 2nd Sep., 1891; The Conch., Dec. 24th, 1891, p. 55.

J. W. WILLIAMS. **Lanc. S.**

Helix hortensis, var. trochoidea (Cless.) in Worcestershire [and also at Clayton-le-Moors (R. Wigglesworth); locality afterwards corrected to Simonstone, by R. W.]. Sci. Goss., Oct. 1890, p. 232.

J. W. WILLIAMS. **Lanc. S.**

New Shells from Southport [giving localities for Amalia marginata, *Zonites alliarius*, *Z. excavatus*, *Helix aspersa*, *H. virgata*, *H. pygmæa* *Vertigo pygmæa*, and *Pupa marginata*, sent by G. W. Chaster]. The Conchologist, 25th March, 1891, pp. 10-11.

F. W. WOTTON. **Yorkshire.**

On the Occurrence of Achatina Acicula in the Cardiff District in two New Localities [concluding with a statement as to their being taken from Saxon coffins in Yorkshire, where they were first noticed, and added to the British list by Mr. Boys, in 1784]. Trans. Cardiff Nat. Soc. for 1889, vol. 21, part 1, publ. 1890, p. 43.

THE CHEMISTRY OF SOME COMMON PLANTS.

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WHAT is the reason why so very few members of the grand army of plant grubbers (collectors) ever take note of the fact that the true scientific study of plants consists not in naming them (which is mere literature), but in analysing them? Possibly the reason of this neglect in most cases is that persons who take an interest in botany in an intensely literary country like our own, strongly object to what Wordsworth would call 'murdering to dissect.' If they do not hesitate to press the very life out of a collected plant in order to preserve it for the herbarium, they at all events are exceedingly averse to 'misshape the beauteous forms of things,' in order to satisfy the cravings of 'our meddling intellect.' No doubt it is true that for anatomical analysis the parts of plants are killed, dissected, prepared, etc., for the microscope, yet at the same time this mere 'dry bones' dissection may convey a very inadequate conception of the life of the plant itself. Anatomy is a grand step towards physiology, but a more effective and bounding step is taken when the chemistry of the plant is studied, for then inasmuch as the very elements or principles which are the most direct and immediate products of the enginery of the vital process itself are clearly detected and distinctly separated, we can thereby attain to a fuller, juster, and more adequate idea of vegetable life than by any other means whatsoever. It may be held, moreover, that in this way we really 'dissect to live,' so to speak, and not 'murder to dissect.'

In directing attention in this paper to some of the chief chemical constituents of a few of the commoner species of plants (all obtained in the Lake District), it is hoped that a keener interest in a subject, which is at once exceedingly interesting and eminently scientific, may be excited in the minds of amateur botanists, and of all who are versed in agriculture. We will commence with the 'bold, joyous, and lavish'

Buttercup (*Ranunculus bulbosus*). The brilliant golden shimmer of the corolla is due to a pigment called carotin (on account of its presence in carrot root), which is amassed in discoidal bodies (chromoleucites) that nearly fill up the cells of the epidermis, especially towards the base of the petal; in other parts, especially when the flower is fully expanded, it seems diffused in oily droplets or amorphous granules; but in either case, the starch which exists in minute grains in the subjacent tissue, acts as a sort of reflector contributing greatly to enhance the effect of the pigment. The

flower heads contain a considerable quantity of sugar, starch, oxalate of calcium, and soluble phosphates—in these respects approximating more to the character of leaves than is usual in ordinary plants. The stem and root of this buttercup are remarkable for the presence of an acrid camphoraceous body which is easily decomposed into a volatile bitter principle (anemonin) and an acid even during the drying of the plant, so that its original poisonous action disappears; alkalies, dilute acids, and oxidising agents effect the same change. There is much mucilage, also a small quantity of an iron-greening tannin which seems similar to the tannin of coffee in its reactions, together with much carotin, phyllocyanin, sugar, and a resin which is extracted by benzene after the plant has been boiled in water.

Shepherd's Purse (*Capsella bursa-pastoris*). This plant belongs to the order Cruciferæ, which is noteworthy as producing a peculiar volatile oil which contains sulphur in the form of sulphides and sulphocyanates of an alcoholic body termed allyl. The green parts boiled in water and the solution examined in the ordinary way is found free from tannin, sugar, or colouring matter; on concentrating it and adding a little alcohol a dense curdy precipitate is immediately produced of myrosin, a nitrogenous ferment resembling vegetable albumen; its solution froths when agitated, and when heated with HCl a peculiar violet colour is observed. It is this body, at one time mistaken for the poisonous saponin, which gives to the herb its acrid taste. There is also in the plant about 6 per cent. resin, which dissolves in sulphuric acid with brown colour passing to a splendid red-violet; also much wax, but very little carotin. The very conspicuous seeds have fixed oil, much albumen, and a volatile oil consisting of sulphur compounds of allyl alcohol.

Bird's-foot Trefoil (*Lotus corniculatus*). Who has not observed the brilliant orange and crimson tints of this gay and charming species embroidering the banks and meadows? Very few indeed of our native wild flowers exhibit such a depth, vividness, and lustre of coloration; and no wonder, considering that in addition to the morphological feature of the epidermal cells of the corolla being swollen out into papillæ, no less than three separate and distinct pigments conjoin in the production of the effect. First there is carotin contained in homogeneous chromoleucites, and then two soluble colouring matters—one a clear yellow juice which seems to be a solution of luteolin (the colouring matter of weld) or an ally, and the other is identical with anthocyan of the rose, etc.; when this latter predominates, the colour of the petals, or parts of them, is deep red. Like all, or most, Leguminosæ this plant is specially rich in proteid bodies, containing 13·57 per cent. in the dry substance, of

which 10·91 are pure protein and 2·66 amides, or about 4 per cent. nitrogenous bodies in the fresh plant. There is also fat, resin, sugar, and pectin, but no tannin. The rôle played by the latter body in most plants is here taken by an ingredient which seems identical with luteolin. It yields all the reactions of quercetin, which it closely resembles, except that its alcoholic solution is coloured olive-brown or red-brown by perchloride of iron, and not deep green as in the latter case.

Yellow Bedstraw (*Galium verum*). This extremely cheerful and pretty denizen of the driest wastes and sand-banks is exceedingly interesting from a chemical point of view. Its aspect is palpably yellow, and the tiny flowers are tinctured by carotin, and have in addition much yellow resinous matter, an iron-greening tannin $C^{14}H^{8}O^{8}$, rubichloric acid $C^{14}H^{8}O^{9}$, citric and quinic acids, starch, much oxalate of calcium, but very little mucilage, and a curious purplish substance (possibly purpurin) insoluble in cold alcohol or benzene after purification; there is also a species of ferment (vegetable rennet) in the flowers which has the power of coagulating boiling milk. The stem and root have pretty much the same composition, the most remarkable feature of which is the intense colouring-producing power of some of its constituents. Rubichloric acid, for instance, which forms a colourless solution in water, when boiled with a few drops HCl suddenly produces a deep blue, then green colour, and deposits a dense, dark-green precipitate which is soluble in ammonia, and fused with potash does not yield any benzene derivative.

Daisy (*Bellis perennis*). This 'the emprise and flowre of flowres all' is rather bereft of important or interesting chemical constituents. The florets of the disc are tinged by carotin enclosed in chromoleucites of a granular structure; the florets of the ray when they are crimson-tipped or all deep pink owe this soluble pigment to a tannin anhydride. The other constituents of the plant are resin, inulin, an iron-greening tannin in small quantity, malic and tartaric acids, etc. The presence of inulin in the capitula serves to explain the rapidity with which daisies spring up on a just close-shaven lawn.

Dandelion (*Taraxacum dens-leonis*). The familiar milky juice issuing from the plucked stalk of this plant is an earnest that it abounds in highly interesting chemical constituents; and so, in point of fact, it does. The flowers are coloured by carotin contained in homogeneous chromoleucites, which are derived from chloroleucites. The milk saps of plants in general always contain resin, caoutchouc, essential oil, albumen, starch, sugar, fat, tartaric acid, a colouring matter, and mineral salts. The peculiar bitter principle of

the Dandelion, to which its diuretic, tonic, and stomachic effects are due, is called taraxacin, and is crystalline, neutral, and non-volatile; it is soluble in hot water, and sulphuric acid dissolves it with a pink coloration. The root contains inulin, especially in the autumn; also sugar, levulin, while its juice exposed to the air ferments and yields mannite in large quantity. The leaves are very rich in various substances such as protein, inosite, quinic acid, a bitter principle which is not a phloroglucide, and a peculiar tannin allied to that of coffee, being distinguished from the majority of tannins by dissolving in sulphuric acid with red colour, by yielding a deep blue-green liquid when its ammoniacal solution is exposed to the air, and by yielding protocatechuic acid only when fused with caustic alkali. The red pigment of the stem and leaf stalk is identical with anthocyan (isomorin), and all the tannin in this part of the plant seems used up in its production.

Harebell (*Campanula rotundifolia*). Save for the stainless azure blue of the corolla, nobody would imagine that a meddling chemist could make anything out of this lean and wiry herb. Its analysis, however, proves rather a surprise; for it contains a very considerable quantity of resin, wax, and fat. There is also a tannin similar to that which prevails in the allied order Compositæ: also a bitter or acrid principle which is not a phloroglucide, and yields fine reactions with strong mineral acids. Mucilage and sugar are tolerably abundant. The blue of the flower may be compared with that of the bluebottle or chicory-pigments which are evolved from a tannin essentially different from those of the Rosaceæ, Ericaceæ, etc., in not yielding coloured anhydrides, and also indicate a nice balancing of the acids and bases present in the sap of the petal cells.

Bilberry (*Vaccinium myrtillus*). Here we have an example of a mountain plant which is fairly representative and tolerably familiar, and may be adduced as an apt illustration of the beneficent effects of free fresh air, abundant light, and radiant heat upon the chemical energies of the vegetable organism. The processes of metabolism, katabolism are carried very far indeed in this case, as is evinced by the peculiar features of the analytical results. Thus resins, tannin, strongly coloured pigments as phlobaphenes and humus matter with much mucilage abound in the tissues. In early summer quinic acid and quercetin are present in notable quantity, while later on an easily oxidisable tannin predominates which is very similar to that of the horse-chestnut bark, yielding anhydrides, phlobaphenes, and colouring matters readily. This tannin, when fused with potash, yields protocatechuic acid and phloroglucin, whereas the latter body is not obtained from the tannins of the higher plants we have hitherto

treated. The berries contain about 6 per cent. fruit-sugar, and 1·3 per cent. citric and malic acids in nearly equal quantities; their colouring matter is turned blue by oxide of lead, and not green as in most other cases, a fact which points to the complete conversion of tannin into pigment.

Primrose (*Primula veris*). Two colouring matters are engaged in the decoration of the very conspicuous though not particularly vivid corolla of this species. At the base, where the tint is more deeply orange, a number of chromoleucites tinctured by carotin are assembled, while the rest of the petals are filled by a pale yellow soluble pigment. Although the tints are comparatively feeble, nevertheless a chemical investigation clearly reveals the fact that the plant is capable of exhibiting an infinitely richer wealth of coloration than what it actually does show in our climate at all events. It seems almost impossible to exhaust the flower heads of substances which yield vivid and powerful orange and yellow dyes. The odour of the flowers is due to a butyraceous volatile oil; they also contain a neutral wax or fat, resin, and a body which gives all the reactions of luteolin or quercetin, and is the source of their soluble colouring matter. The plant contains an acrid principle called primulin $C^{20}H^{32}O^{10}$, which has a toxic action similar but less energetic than curarine; it is white, crystalline, froths when its aqueous solution is shaken, and dissolves in sulphuric acid with the gradual production of a reddish-violet coloration; its chemical relationship has not been determined, but it is probably a constructive element aiding nutrition.

Bogbean (*Menyanthes trifoliata*). Although this extremely beautiful plant grows root and stem right in the pools and shallow waters, it must not be considered that its chemical constituents are considerably dissolved away by the aqueous element. Far from it; in fact, even the infusion of the plant sweetened with sugar gelatinizes in a few days, owing to the presence of a pectin compound or a kind of starch called inulin. Stems and leaves have much wax, also a tannin which is iron-greening, and when oxidised yields protocatechuic acid, but no phloroglucin. The most palpable ingredient of the plant is a bitter principle menyanthin $C^{33}H^{30}O^{14}$, which is only slightly soluble in cold water, is yellow and amorphous, and when warmed with a dilute acid yields sugar and a volatile decomposition product of a penetrating odour like oil of bitter almonds. There is much resin, and a pentosan, oxalate of calcium, and probably also mannite or gentianose.

Nettle (*Urtica urens*). It may be wondered how many people who have experienced the 'tropical ferocity' of this plant inquire or care about finding out the particular principle to which they owe their temporary irritation. Even the most vandalistic plant-grubber

might surely devote a few minutes' cogitation to the matter. The very atmosphere in which the plant breathes, especially if the sun be high and strong, seems redolent of ammoniacal odours; and this fact affords a tolerably safe presumption that it is rich in nitrogenous matters. In May, the fresh leaves contain about $5\frac{1}{2}$ per cent. protein, which is a very large proportion. When the herb is distilled with water, carbonate of ammonia and formic acid are obtained—bodies which indicate the presence of nitrogenous and resinous matters, and were at one time fastened on as imparting acridity to the sting-fluid; but a more searching investigation has shown that they have got little to do with it, and that this inflammatory property is not due to an alkaloid nor to any volatile body, but to an unorganised ferment derived from the albumen of the very large gland which occupies the greater portion of the stinging hair. The extreme depth of its verdure is owing to the large amount of carotin which the plant contains, larger than any other common plant. According to M. Arnaud, at the flowering period the dry leaves contain 171·7 mgrms. per 100 grms., or over a $\frac{1}{1000}$ part of their weight, and it darkens the natural tint of the chlorophyll. In fact the benzene extract of the leaves gives the deep blue reaction of carotin with sulphuric acid at once; no other leaf known to me does this. There is no alkaloid in the leaves, but they contain a curious glucoside which, boiled with acids, yields a dark brown, almost black, tarry substance which is soluble in alkalies, and is not a derivative of benzene. There is very little tannin in the plant; what there is seems to be viridinic acid, as the yellow decoction left to dry in the air yields a fine emerald green residue which is turned red by sulphuric acid. About $\frac{1}{2}$ per cent. fat, 7 or more per cent. resin, and much mucilage with malate, nitrate, and oxalate of calcium, complete the list of constituents of a highly remarkable herb.

Ribwort (*Plantago lanceolata*). This plant contains protein (about 2·65 per cent. in May), sugar, resin, very little fat, much carotin, viridinic acid, and a bitter principle which boiled with acids the liquid on filtering and cooling deposits an azure blue substance which is not indigo.

Grass. For the account of a mere rough qualitative analysis it would be invidious to mention any particular species of the emerald sod. We can only refer to some of the general features of the case. In the first place, the amount of nitrogenous substances varies considerably in the different species and during the different stages of growth and development. Of the total nitrogen about one third is about the middle of May composed of amides and amido-acids; and it is these bodies which are supposed to be

transformed in the body of the cow or horse which is put to grass into the hippuric acid which is so abundant a constituent of the urine of these animals. Again, grass contains a large quantity of fat, which is really vegetable wax mixed with a solid hydro-carbon, various higher alcohols and phytosterin being present therein as bases, instead of glycerine, as in true fats. There is also a considerable amount of gum, pentosans, mucilage, etc., which contain galactose in such quantities as to enter (as lactose or milk-sugar) the milk secreted by the mammary glands of herbivora. There is little or no tannin in pasture-grasses; but there exists a small quantity of a yellow glucoside—either rutin or an ally—the same body to which the yellow colour of straw is due. The 'heaven-sent balm' of new-mown hay must be unpoetically referred to as a substance called coumarin, which is related to the cinnamic acid present in many balsams, and when fused with potash yields salicylic acid. The chlorophyll of grass seems to be associated with the wax (and not with resin, as in nettle, etc.) which it very solidly tints in its entire mass, and doubtless some of the peculiar characteristics of the emerald green of field and sward may be attributed to this circumstance.

NOTES AND NEWS.

We most heartily congratulate the publishers and the new editor (Mr. W. L. Distant) of 'The Zoologist' on their faithful adherence to its old traditions, and also that the changes introduced are decided improvements. We especially welcome the attractive new design on the wrapper, the inclusion of *Homo sapiens* among the British mammals, the exclusion of reports of societies' meetings, and the decided bibliographical convenience of giving the correct number (667) of the January part, thus showing the continuity of the magazine from 1843.

An object of considerable interest and value has recently been presented to the Bradford Corporation, in the form of a segment of a section of *Sequoia gigantea*, a big tree of California, and has been arranged on the wall of one of the landings in the staircase leading to the Public Art Museum, Darley Street. The donor is Mr. John Clayton, a well-known Bradford botanist, to whom great credit is due for the excellent manner in which he has prepared it for exhibition. It may be interesting to state that the tree from which the specimen was cut was known as 'Mark Twain,' and it was 30 feet in diameter at the base of the trunk, which for 150 feet was unmarked by a limb, while its topmost branches were 300 feet above the ground. The felling of the monster occupied three weeks, and transverse sections of the same tree are in the Museum of Natural History, New York, and the British Museum, South Kensington. The complete sections show 1,335 annual rings of growth, but the Bradford segment shows a deficiency of fourteen, accounted for by the cutting of the section into eleven segments—the rings close round the pith having become obliterated. The structure and growth of trees has been carefully studied by Mr. Clayton, and he affirms, without fear of contradiction, that only one properly defined ring is produced in one year, thus the 1,335 rings in 'Mark Twain' prove that the first ring was formed so many years before the tree was cut down. An instructive paper on the exhibit by Mr. Clayton, which may be consulted in the Reference Library, immediately below, renders the exhibit doubly interesting. It may also be observed that a similar segment from the same tree is on view in the Museum of Owens College, Manchester.

BRITISH BUTTERFLIES.

British Butterflies | being | a Popular Hand-Book for Young | Students and Collectors | By | J. W. TUTT, F.E.S., | [eight lines of titles] | London: | George Gill & Sons, | Minerva House, Warwick Lane, E.C. | 1896. [Crown 8vo, 476 pages and 9 plates, price 5s.].

THE author of the book now before us has for his design to produce an 'up-to-date book on British Butterflies in which the recent and generally-accepted schemes of classification are [to be] embodied and logically set forth,' and to prevent the young entomologist from having to unlearn what information he may have gleaned in his reading.

With these objects our author enters very fully and clearly into the various subjects which have of late years occupied the attention of lepidopterists, and it is a striking exemplification of the change which has come over our lepidopterists to find a text-book of butterflies which gives synonymy and well-thought-out chapters on Variation and Hybernation, and which emphasises the absolute necessity of labelling all insects with dates, localities, and other particulars.

The author also expresses sound views on the necessity of expressing the relationship of species by the correct use of generic names, and does not shrink from bringing the nomenclature of our insular insects into line with that used for the group at large in accordance with their natural affinities. Chapters on the practical work of collecting and preparation are given, and each species is treated of comprehensively if somewhat briefly, no aspect of the subject being overlooked.

As to the get-up of the book it is nicely bound in an ornamental cloth case, with all edges gilt, and the type is clear and readable.

We would however suggest to the publishers the vast improvement as regards the reader's convenience (being a work of reference) which would result from the use of a much bolder type for headings and sub-headings, and we altogether fail to see why all such books should not be printed in a standard uniform size, demy 8vo. The book before us is too small and too thick, it might be said too 'lumpy'; there is really no reason for printing such small books, except those which are actually intended to be pocketed.

NOTE—BOTANY.

An East Riding Sedge: a Correction.—I wish to correct a mistake in the name of a *Carex* which occurs in the 99th circular of the Yorkshire Naturalists' Union, published in Part 20 of its 'Transactions.' When I went over the ground for the Withernsea excursion in July, 1892, I collected a Sedge which I named at the time *Carex punctata*, but I have since found that it is the very much commoner species *C. distans*.—CHARLES WATERFALL, Hull, Jan. 21st, 1897.

ARTISTIC AND SCIENTIFIC TAXIDERMY AND MODELLING.

Artistic and Scientific | Taxidermy and Modelling | A manual of instruction in the methods of pre- | serving and reproducing the correct | form of all natural objects | including a chapter on | the modelling of | foliage | By | Montagu Browne, F.G.S., F.Z.S., etc. | Curator of the Leicester Corporation Museum and Art Gallery; | Author of 'Practical Taxidermy,' 'The Vertebrate Animals of Leicestershire and Rutland,' etc. | with 22 full-page illustrations and 11 illustrations in text | London | Adam and Charles Black | 1896 [Small 4to, pp. xii + 463 + 22 plates; price 21s.].

We must heartily congratulate the author of this book, Mr. Montague Browne, Curator of the Leicester Museum, on the accomplishment of a piece of work which does credit to him and to all who have been concerned in its production. At a first glance this work, with its nearly 500 pages of excellent letterpress and plates, seems as if intended for a table-book, so embellished is the cover with gilt, but a look inside reveals a text-book on the art of preserving and displaying animals and plants. It is in no sense a second edition of the same author's 'Practical Taxidermy,' though it covers and extinguishes that book.

The arrangement of the volume is somewhat spoiled by putting the chapter on the preserving media at the front instead of at the end of the book, where their various compositions could be better referred to and at less risk of soiling the general reading matter. The disturbance of a fixed habit is never pleasing. These preserving media are so fully described that seventy pages are devoted to them, and though it may be somewhat difficult to see the relationship at times between 'Artistic and Scientific Taxidermy' and the preserving of *Radiolaria* in a 50 to 70 per cent. solution of alcohol, or Starfishes in a 20 to 30 per cent. solution of the same fluid, or the reason why many of the recipes are there at all, yet personally we thank the author for the care he has taken in collating them. The preserving substances which the author claims to have discovered are marked M.B., and one is struck to find many of these are very familiar. One is an alcoholic solution of bichloride of mercury, with which we doubt not Curators of Museums everywhere were acquainted years before this work was outlined; just as Mr. Browne objects, most justly, to the claims of the American taxidermists to the discovery of methods known and used previously in England, so do Curators, working on similar lines, who discover preserving fluids, which they use in the places over which they have charge, object, though perhaps it does not matter materially, to being told that their methods since they agree with those of a certain writer, who has them in his book, are his not theirs.

Our experience with acetic acid as a preserving or preparatory fluid is rather more favourable than that of the author's, and it has helped us in some cases when preserving insect larvæ.

The book, except perhaps in the really excellent technical descriptions of how skins are made, or skeletons set up, or flowers modelled, is not intended merely to be read, but to be used for reference, hence it bristles with particulars of the compositions and applications of the necessary materials for the subjects it discusses.

It was with great pleasure we came across the strong condemnation of the use of arsenic as a preservative agent, and the substitution of others of a non-poisonous character. Our own experience is that arsenic is too dangerous to the user, and useless as a preservative of skins. 'For the preservation of mammals arsenical paste is quite useless, causing the hair to 'sweat' from the skin and not allowing the operator to stretch it without injury when modelling; added to which it is quite impossible to relax such a skin by soaking in water. . . . Arsenic is only a drier of skins.'

The work is illustrated by plates prepared from photographs, and these are excellent and fairly numerous (22 in number), and many of them are full of examples of the methods of modelling, especially in paper, of which the author is an adept.

The book, as a Curator's guide to that part of natural history to which the author has given so much attention, we sincerely welcome. Would that all local museums could be so subsidised by Corporate grants like to his own, that they might purchase specimens and pay men, as at Leicester, to display the beasts and birds in a natural fashion; without that aid this book could not have been written. But the book is also a successful attempt to teach a better system of preservation and display of natural history objects to taxidermists, by whom it must, when it is known, be appreciated.—H. CROWTHER.

NOTES AND NEWS.

At a meeting of the Hull Scientific and Field Naturalists' Club, held on January 6th, 1897, Mr. T. Sheppard handed round some huge bones which had recently been dug up in the vicinity of Goole, and sent over by Mr. Thos. Bunker of that place. On comparing these with the large whale's skeleton in the Hull Museum, they proved to be part of the bones belonging to the fin of a young whale—no doubt a relic of the old whaling days. They have several grooves and impressions on them, which have evidently been made by a plough-share passing over. It was pointed out that in the neighbourhood of the Humber, and especially around Hull, the lower jawbones of the whale are frequently used as gate-posts, or as ornaments in gardens, etc. Odd ones are to be seen, utilised in this way, at some of the villages which are situated a good distance from the Humber.

THE STUDY OF WILD FLOWERS.

How to Study | Wild Flowers | by the | Rev. GEORGE HENSLOW, M.A., F.L.S., etc. | For the Use of Schools and Private Students. | With 57 illustrations | R.T.S. | 1896 [Cr. 8vo. cl. pp. 224. 2s. 6d.]

To appreciate this little work adequately to its merits would be to eulogise it in one of equal length. Not to newly exemplify 'the Folly of Praise,' we can only (but with good conscience) advise all interested in learning or teaching Botany to buy and use this. To the *dilletante botaniste* of the ladies' school it should prove a godsend, with its attractive insistence upon accuracy in observation, from the simplest thing upwards. The author—an old teacher known to fame for the infectious nature of his *con amore* methods—very justly points out at start, that the great use of botany in schools is 'the training the young mind in systematic observation and accurate habits'; his way will secure it, and so taught, botany has 'a most important educational value': otherwise taught it often becomes 'worse than useless.' These are wise words to be pondered; method is much, *plus* manner, and the Parnassus elsewise unattainable is reached. The fire may be ever so well 'laid,' but without the match it cannot blaze.

The title sufficiently indicates the aim and scope of the book. Typical genera, and noteworthy common species in those genera, are taken one by one, through all the orders; and the remarks upon each are marvels of judicious compression, the aids to examination and dissection of the floral envelopes concise and accurate. One omission only strikes us: under Primulaceæ, there is no mention of the unique seven-stamened Wintergreen (*Trientalis*), nor is the normal five-part *Lysimachia* (common enough either as *L. nummularia* or *L. nemorum*) of which it may be a specialised development, alluded to, and the striking and frequent Flowering Rush (*Butomus*) with its nine stamens, gets no special mention under Alismaceæ.

The difficult thing for a critic in the case of this work is to ferret out anything to find fault with, and in correcting show his superior knowledge! Every statement is so lucid, so incontestible, and so informing, that it almost looks as if the book was a crystallisation of a century of practical study. The critic, in self-defence, would like to take one short paragraph as an instructive example. Not to pick, he opens at page 172, and there we find

'1. *Men'tha sylves'tris*, *Horse-mint*. The genus *Mentha* has 7 species, and a large number of sub-species, according to Hooker's arrangement. They are strongly-scented; more than one has the odour of peppermint, as the common water-mint, *M. aquatica*, and the true peppermint, *M. officinalis*. The horse-mint is rare in England, being the commonest in the East, as Palestine, where it is

cultivated. It is the species alluded to in Scripture (Matt. xxiii. 23). A variety, *M. viridis*, is cultivated in gardens. The peppermint is also a doubtful native. *M. aquatica* is softly hairy, with ovate leaves, the glomerules large, pale lavender in colour, the pedicels and flowers very hairy. It is a common plant by watersides, and very strongly scented.'

It would be hard indeed, to add anything to this, for what is not directly stated must inevitably (and safely) be inferred from the ample reserve in the words used. Certainly nothing could be left out without distinct loss.

One of the woodcuts is not quite satisfactory,—the 55th figure, of *Alisma Plantago*, has the petals relatively too large and crimped at the border. On page 97 *Vicia Cracca* is said to have 'bright blue' flowers : we should say they are of a vivid violet, rather. On page 210, writing of the two smaller Duckweeds, the compression might lead to overlook in the young observer. '*Lemna gibba* resembles *L. minor* above' we are told, the striking difference in colour and facies not being indicated. *L. minor* is always green, inclining to yellowish, whilst *L. gibba* can be told at once, yards off the dike it scums, by its peculiar coppery red hue, and a lumpy appearance due to the obese light-floating fronds jostling one another more or less out of the water.

The remarks upon, and the philosophy of the remarkable powers of self-adaptation to circumstances of the Batrachian group of *Ranunculus*, are very well put ; the difference of structure in the air-grown or under-water capillary leaves, and the fact that neither kind of dissected leaf can live in the wrong medium, being fully explained. The axillary corms in the Pilewort are sufficiently dealt with.

The work, indeed, is that rare thing—a true *multum in parvo* to the disciple of Flora.—F. A. Lees.

NOTES AND NEWS.

We have had the pleasure of receiving a collection of Fossils from the Middle Eocene of Barton, etc., sent us by R. Charles, Highcliffe, Christchurch, Hants. To the north-countryman it is almost as far a cry to Hampshire as it is to Loch Awe, and so his opportunities of reaching terms of intimacy with the Middle Eocene rocks and their fossils are very narrowly limited. Mr. Charles, who is a local amateur geologist, is trying to remove the limitation by bringing the beautiful Hampshire fossils to our door by the medium of the Parcels Post. The collection before us includes about 30 species, represented by close upon 200 specimens, at an extremely moderate price. The beautiful condition of the Barton specimens is well known to collectors, and Mr. Charles' names are reliable. It is a thing greatly to be desired that there should be such enthusiastic collectors as he attached to each of our great formations, both in the interests of those who wish to obtain fossils from them, and also in the interests of the science which profits by the discovery of novelties or of rarities ; on both which grounds we hope Mr. Charles will be practically encouraged in his undertaking.

BIRD-NOTES FROM THE MID-TRENT VALLEY.

F. B. WHITLOCK,
Nottingham.

My last instalment of notes from the Mid-Trent Valley covered a period extending nearly to the end of 1894 (vide Naturalist, 1895, pp. 63-68), and closing just previous to the setting in of the severe weather which characterised the advent of 1895.

The frost commenced in earnest on 29th Dec. and lasted practically until the 20th of the following February. It was varied, however, by occasional thaws, and from 20th to 26th January we had a heavy flood out. The severest cold occurred about 10th February, when the Trent was full of drift ice and its margins were frozen on either side to a width of eight or nine yards. The thickness of the ice in the latter instance being sufficient to bear skaters. In several places where the floes had jammed a solid surface seven or eight inches in thickness was formed, strong enough to bear a pony and cart. Exceptional weather of this kind naturally had considerable effect on local bird life, the Duck family being chiefly concerned.

Prior to December 1894, we had the average number of Mallards (*Anas boschas*) and a few Teal (*Anas crecca*), but later on, during the extreme cold, the Trent was visited by Tufted Ducks (*Fuligula cristata*), Scaups (*Fuligula marila*), Wigeon (*Anas penelope*), Golden-eyes (*Clangula glaucion*), Goosanders (*Mergus merganser*), and Pochards (*Fuligula ferina*). These species occurred in varying numbers; the Tufted Ducks perhaps being the most common, and the Goosanders only turning up singly. On February 21st I saw three exceptionally handsome Pochards, their grey backs looking almost white in the bright sunlight, and though they were fully one hundred yards away the chestnut of the head and neck was plainly visible. On December 1st I counted 61 ducks of various species on the wing at the same moment.

Coot. Fulica atra. As is customary during frosts this species appeared on the Trent, but none remained to breed the following spring.

Little Grebe. Podicipes fluviatilis. This species was also very much in evidence during the hard weather, though it breeds very sparingly in the county. I stalked an individual when the Trent was very low and clear. When it dived it appeared to me that the half-open wings had the tips directed

upwards and at an angle to the plane of the body. This position seemed to act as an aid in keeping the bird below the surface. At the place of observation the river-bed deepened very gradually towards the centre.

Woodcock. Scolopax rusticola. As a result of the severe weather, Woodcocks were common in Nottingham Market. The majority, however, came from a distance. About the third week in February one dealer received 180 in a single consignment, from the neighbourhood of the Sound of Mull, Scotland. They were of the small red-brown race, and in very poor and emaciated condition.

Lapwing. Vanellus vulgaris. We had large numbers until Christmas 1894, but all disappeared about the latter time until the following March. By the end of the latter month nesting operations had commenced. On April 7th I found four eggs. I intended watching the period of incubation in this case, but on passing the place a week later I noticed one egg had disappeared. Thinking the remainder would be likely to follow, I took them home for the benefit of a sick inmate. A few days afterwards I found a second nest some thirty yards distant from the previous one, containing a single egg. I was surprised, however, by the fact that the full clutch was not completed within the next week. I took this egg home also, and found it matched the three from the first nest, both in shape, size, and markings, and have little doubt that it had been removed to the second nest by the parent birds: consequent, perhaps on my taking too great an interest in the former.

With regard to spring migrants, the Yellow Wagtails (*Motacilla raii*) and Sand Martins (*Cotile riparia*) arrived at the customary early date, being first observed by the river-side. I saw a Redstart (*Ruticilla phœnicurus*) and a Tree Pipit (*Anthus trivialis*) on 13th April, rather an early date for this locality. Yellow Wagtails were very numerous on the latter date, but they sought the shelter of the banks of the Trent on account of the cold and strong east wind. I noticed a White Wagtail (*Motacilla alba*) the following day. It was not until May 1st that I saw the first House Martin (*Chelidon urbica*).

Chiffchaff. Phylloscopus collybita. I found a nest with two eggs at the foot of a young sapling, on May 2nd. In the same wood another pair of birds were breeding, but I could not find the exact spot. However, some weeks later the nest with

young was found under a large oak tree. I had searched in vain in some low brambles, but it was actually placed in a small hollow in the ground, the entrance being quite on a level with the latter. Such a situation is very unusual.

Common Whitethroat. Sylvia rufa. I saw a nest of this species in a curious situation. It was in an orchard, the tenant of which to preserve some young trees from the rabbits, had surrounded each with small-meshed galvanized wire. The parent birds had constructed their home inside the circle formed by the latter.

Pied Wagtail. Motacilla lugubris. A pair of these birds built their nest inside an empty beer-barrel at Beeston Brewery. The barrel had no head.

From May 10th to 24th I visited West Cumberland, but observed nothing of special interest except considerable flocks of Turnstones (*Strepsilas interpres*) in summer plumage. A Ringed Plover (*Ægialitis hiaticula*) however had laid her eggs inside a small tuft of marram grass, which is not the usual practice with this species. There were young Sandpipers (*Totanus hypoleucus*) out on May 21st. It was rather ridiculous to see the Black-headed Gull (*Larus ridibundus*) perching on the chimney-pots, as was often to be observed, in one small town on the coast.

Pheasant. Phasianus torquatus. I had the blue-green variety of the egg of this species brought to me for identity.

Red-Legged Partridge. Caccabis rufa. I saw three nests of this species all very close together. Two were in spinneys, and one in a hedge-bottom.

Whinchat. Pratincola rubetra. I saw a Chat as late as October 6th, having seen the same bird a week previously. To all appearances it was a Whinchat. I was loth to kill it to settle the question beyond dispute.

Cormorant. Phalacrocorax carbo. On October 6th, after strong winds from west and south-west, I met with a pair of these birds fishing in the Trent. They looked like old ones, but were rather shy. With the aid of a glass I watched one of them feeding. Once or twice it came up with a fish, but more often with a tuft of water-weed, which it swallowed with difficulty.

Swallow. Hirundo rustica. At dusk, on 13th October, a flock of about thirty-five Swallows passed over to north-east.

Redwing. Turdus iliacus. On 15th October, with light E. to N.E. winds and drizzling rain, a many Redwings were to be heard passing to south-west. They were accompanied at times by some larger birds; from the whistling of the wings, the latter were probably ducks.

Peregrine. Falco peregrinus. A young female example of this species was shot near Normanton-on-the-Wolds about November 5th. It was erroneously recorded in a local newspaper as a Honey-buzzard. On December 1st I was watching a large flock of Lapwings which, for some cause or other, were very restless. They had reason to be; for I soon detected the presence of two fine Peregrines which swooped down into the flock, scattering them in all directions. They, however, collected themselves together again and rose to a great height. Meanwhile, one of the Peregrines had attacked one of a pair of Redshanks which were accompanying the Lapwings. Both pursuer and pursued passed close to where I was standing and presently rose to a great height. The Falcon easily overtook the Redshank in fair flight, but the latter avoided the stroke by the rapidity with which it turned. I cannot say what was the end of the affair, but I rather think the Falcon was successful, as I saw a single Redshank in company with a large flock of Golden Plovers (*Charadrius pluvialis*) later on. The Redshank is very scarce here in winter. But to return to the Falcons. Soon after the above incident the pursuer rejoined its mate, and both commenced an attack on a party of Hooded Crows. About twelve of the latter were sheltering in a small ash-tree. One of the Falcons would buffet a Crow out, then both would follow up the attack, but immediately two or more of the Crows would fly out to the help of their comrade, until the Falcons gave up the attempt. These birds appeared to be male and female. The former an old bird with blue-grey back. A note one of them uttered was like 'hek-hek.'

Hooded Crow. Corvus cornix. This crow was common both in spring and autumn. They are very fond of the water, frequently taking a bath and looking like huge Wagtails as they wade into shallow pools left by floods.

Tree Sparrow. Passer montanus. One of two specimens, shot for a friend, had a distinct tinge of grey-brown in the chestnut colour of the crown.

Water Rail. Rallus aquaticus. I frequently observed a pair in a particular haunt throughout the winter. Col. Irby writes of a croaking note uttered by this species (Ornith. Straits of Gibraltar). I have heard a sound of this nature issuing from a marsh in the very early part of spring, but have attributed it to frogs. Have any readers of the 'Naturalist' heard the Water Rail uttering a note as described by the former ornithologist?

Golden Plover. Charadrius pluvialis. A considerable flock spent the winter of 1895-6 with us. They were up and down the Trent Valley continually. I handled a few of them that were shot. In March 1896 I came across them on the Leicestershire side of the Trent, at Sawley. They then numbered about 200, and were in company with a single Redshank and large numbers of Peewits. At that period they showed no signs of the black breast.

Bohemian Waxwing. Ampelis garrulus. An example of this species was procured at Smalley, in Derbyshire, on 26th January, 1895.

Fieldfare. Turdus pilaris. We had a few remaining with us throughout the hard winter of 1894 and 1895. They frequented the margins of the river a great deal. On February 3rd I put one up which attempted to cross to the other side. It was so weak, however, that it fell into the water several times before this was accomplished.

Gulls. Laridæ. A young Lesser Black-back (*L. fuscus*) was shot at Wollaton about 24th February. On January 3rd I saw two or three examples of *L. canus* or *ridibundus*. On 6th of the following month I saw individuals of *L. fuscus* (immature), and an adult *L. canus* or *tridactylus*.

In contrast to the severe winter of 1894 and 1895, that of 1895 and 1896 was exceptionally mild, and as regards bird-life very uneventful. I paid many visits to a marsh for flight-shooting, meeting with moderate success. All I killed were Mallards. One evening, I think a Tufted Duck came to feed, I supposed it was of this species from its harsh call-note.

On 29th March my residence of upwards of ten years in the Trent Vailey came to an end. I can now no longer hear the roar of Beeston river, or watch the migrations of the Lapwing from my sitting-room window. Any further notes I may send therefore, will only be disconnected items relating to casual visits to my favourite old haunts.

February 1897.

BRITISH SEA BIRDS.

British Sea Birds | By | CHARLES DIXON | Author of | [four lines of titles] | with eight illustrations | by | Charles Whymper | London | Bliss, Sands and Foster | 1896 [8vo, cloth, price 10s. 6d.; pp. 295+8 of advertisements+8 plates].

ORNITHOLOGY in the hands of Mr. Charles Dixon is a many-facetted subject, of which he turns first one aspect and then another to one view in the many works which he has successively published.

This time it is the Sea Birds which we are invited to notice—and the term proves to be an unexpectedly comprehensive one. For not only are the truly marine species included, but also the innumerable host of birds which spend part of their annual movements upon the coast-line, thus emulating those of the human kind who—the serious business of life suspended for a time—seek health and relaxation at a sea-side watering place.

Mr. Dixon's concluding chapter is devoted to Migration on the Coast, but need hardly engage our serious attention, especially at a time when so authentic a paper as the Digest of the Migration Reports as that which was read to the British Association at Liverpool last year, and of which we expect to give a notice soon.

Mr. Dixon's literary style is flowing and interesting, and this and his other works will do good service if they arouse that intelligent interest in ornithology which will lead to a demand for the standard works on the subject.

One word of commendation we must give to the illustrations, one of which is used for the embellishment of the cover, and the publishers, Messrs. Bliss, Sands & Foster, are thoroughly to be congratulated on the attractiveness of the get-up.

NOTE—LEPIDOPTERA.

Occurrence of Coremia quadrifasciaria in Mid Lincolnshire.—On Midsummer-day, 1896, when I was living at Panton, I made my way to Warren Hill Copse with a view to finding *Melanthia albicillata* and *Eupisteria heparata* (=*obliterata* Hufn.), which I had taken there in previous years. *E. heparata* I took sparingly, but *M. albicillata*, like *Nola cristulatis* and *Asthena sylvata*, I altogether failed to find in the year of grace 1896. I captured, however, a species which I consider of far greater interest, viz., *Coremia* (=*Xanthorrhoe* Hb.) *quadrifasciaria*. It was a fine female specimen, quite freshly emerged, and, although kept alive for over a week, it did not deign to lay any eggs for my benefit. This is, so far as I know, the most northerly record for this species, which has previously been recorded from Cambridge, Essex, Gloucester, Hertford, Kent, Norfolk, and Surrey. It is an extremely local insect, and therefore easily overlooked. Stainton says that it feeds on low plants, hawthorn, etc., whilst Meyrick gives *Galium* as its food-plant. In corroboration of the latter Mr. W. H. Harwood, of Colchester, informs me that he has fed it up on *Galium mollugo*. It will also eat knotgrass (*Polygonum aviculare*), as I can vouch from personal experience.—Rev. G. H. RAYNOR, M.A., Hazeleigh Rectory, Maldon, Essex, 7th December, 1896.

THE YORKSHIRE BOULDER COMMITTEE AND ITS TENTH YEAR'S WORK.

THOMAS TATE, F.G.S.,

Leeds, Hon. Secretary to the Committee.

During the year our knowledge of the ice-borne erratics of Yorkshire has been extended chiefly along the borders of the county. An extremely interesting report from Mr. Thornton Comber directs attention to certain observations made near to Pickering. Concerning these deposits Mr. Fox Strangways writes, 'On either side of the great valley (vale of Pickering) there are seen rising on the flanks of the hills certain sands and gravels which, although wholly unlike each other in their included fragments, were probably formed by the same agent and at the same time. Both the sands on the south and the gravels on the north side of the valley are formed almost entirely of fragments derived from the rocks against which they abut, proving the entire local nature of the agent by which they were deposited. Immediately associated with these sands and gravels are the lacustrine clays and alluvium which occupy the remainder of the valley. The whole of the central, low-lying plain is covered with these sands and clays, which are of considerable thickness. The gravels of Pickering are derived from the Oolites generally, those of Malton mostly from the Oolitic limestone, those at Norton from the chalk.' Seeing that this is all quite local material, is it not possible that Mr. Loy may have mistaken a coarse grit for a granite, as is often done by untrained observers? and a careful look-out for further evidence should be maintained by all members residing in the locality. The true boulder clay, 'a vast accumulation of clay and stones, hugs the coast in a most striking manner, and does not on an average extend more than two miles inland.' All these facts point rather to an extra-morainic freshwater lake in some way related to the gorge at Ayton, and to the yet more remarkable gorge cut by the river Seven at Sinnington.

From the opposite side of the county Mr. Robert Law, F.G.S., records an important series of observations made in the Walsden valley. The boulders coincide in character with those found in the Calder valley, and indicate that the latter valley has been fed by way of Littleborough. It does not follow that all the boulders found in the Calder valley have come down the Walsden valley. The distribution of the boulders rather suggests that, after passing Littleborough, part have been deflected to the north-east by the high moors around Alderman Stones (1350′)

into the Cragg Brook valley to Mytholmroyd; while the more southern portion, after being pushed to the north by the Green Withens (1400′), has crossed the watershed along Blackstone Edge, descending the Ryburn valley to Sowerby, North Dean, and Elland. If this be so, systematic exploration of the country extending from Littleborough to Blackstone Edge, and of the high ground lying between the foot of Turley Hole Edge and Ripponden should reward the explorers with evidence thereof, and we earnestly commend this bit of research to the band of active workers already familiar with the various kinds of pebbles likely to be found.

Turning to South Yorkshire, Mr. Hemingway has contributed another batch of the 'finds' peculiar to the Dearne Valley (see Report for 1894). These rocks are quite unlike the pebbles obtained from boulder clay in close proximity (Carlton, East Gawber, Smithy Green), and two or three may be Norwegian. The writer accompanied Mr. Hemingway in a careful examination of the area to which these boulders are restricted, but he is unable to explain their presence there, unless it be that they were brought from the coast in connection with the making of the Barnsley Canal, which was navigable in 1799, the Act of Parliament having been passed in 1793.

During our annual meeting held in Doncaster, October 1894, Mr. Corbett first brought under notice of this Committee several remarkable exposures of boulder clay in that district. These have been investigated by our Chairman, under the guidance of Mr. Corbett, and their extremely valuable joint report thereon will be found herewith.

Lastly, coming to the coast, the Hull Geological Society's East Riding Boulder Committee have completed their elaborate exploration of Holderness, adding 2,600 boulders to those previously recorded. In the method and thoroughness of this work our Hull friends have set an example of which all British glacialists will do well to take note.

The following reports received during the year have been accepted:—

Reported by Mr. C. T. Thornton Comber, L.R.C.P., M.R.C.S., *Pickering*.

South of Pickering there is a line of conglomerate composed of perfectly rounded stones about twelve or eighteen inches in diameter, bound together by a small amount of clay; they are evidently water-worn. I saw them recently exposed during drainage operations along the south side of Vivis Lane (alt. 100 ft.). North of Pickering there is said to be a line of boulder clay and debris running east and

west, a short distance up the hill. I visited it in company with Mr. Loy, of Keld Head, the owner of the land, who declares that he has found pieces of smoothed granite while ploughing was in progress. He also said that the line of stiff-clay backed up the water in the land higher up the slope, and that he had had to drain through it in several places; he also pointed out that all the ponds in the pastures were in the same line. While draining he found the clay packed with debris. I saw no granite, but there was a quantity of stone on the surface, mostly different kinds of grits and limestones. Mr. Loy said that below the subsoil it was 'all red rock,' probably sandstone. This place was up Crook Lane about half-a-mile north-west of Pickering (alt. 150 ft.). We then went over Wrelton Cliff and along Highfield Lane, about three miles further west, and were joined by Mr. Harrison, of Riseborough, the owner of the land. Wrelton Cliff (alt. 208 ft.) is an outlying spur shown by a railway cutting to be Kimeridge clay. The sides and top are coated with a stiff-clay of different quality, full of smoothed pieces of grits, limestones and spar; by the roadside are blocks of smoothed and scratched grits with a skin on them, up to about two feet in diameter; they were said to have been dug out of the land when the road was widened a few years ago. Mr. Harrison said that when excavating for a cellar the clay was full of 'cobbles of different sorts' (alt. 166 ft.). The Report is accompanied by a carefully prepared tracing of the district, from the six-inch Ordnance sheet, No. 91. The attention of Mr. Comber having been called to the following extract from Prof. Carvill Lewis (Glacial Geology, p. 196), 'Above Levisham are great piles of talus made up of angular debris which has slipped down from the cliff sides. The valley now becomes wild, with steep rocky hills on either side, and choked up with heaps of talus, made by landslips and avalanches. No trace of drift. The local debris is heaped up much like a glacial moraine at the highest part of the [Pickering] valley'; he remarked:—'This evidently refers to what is known locally as Stoney Moor which is five miles to the north of Pickering and on an entirely different formation. The Moor is just above the Kellaways rock, and shows no sign of boulder clay, but along the foot of the tabular hills which stand above it is a mass of angular talus evidently fallen from above as it is comprised of the same grits that cap the hills.'

Reported by Mr. E. HAWKESWORTH, *Hunslet*.

SALTBURN.—Boulders placed in Saltburn Gardens for ornamental purposes; probably taken from bed of Skelton Beck which runs close by.

Shap granite	...	...	...	40 × 30 × 30″
,, ,,	...	...	...	36 × 20 × 20″
Whin Sill? ...	...	...	...	33 × 27 × 27″
,, ,, ...	...	...	...	45 × 27 × 14″

SKELTON BECK.—In bed of stream just above North Eastern Railway viaduct :—

Whin Sill	...	...	...	29 × 26 × 19″
,, ,,	...	...	...	23 × 16 × 12″
,, ,,	...	...	...	25 × 13 × 10″
,, ,,	...	...	...	24 × 22 × 21″

JUNCTION of Saltburn and Skelton Valleys :—

Whin Sill	...	...	...	18 × 16 × 13″

SHINGLE BED on beach S. of Saltburn :—

Shap granite	...	...	...	17 × 10 × 7″

EASINGTON BECK.—First about a mile up from sea, second about two miles :—

Shap granite	...	...	...	20 × 20 × 12″
,, ,,	...	...	...	43 × 36 × 20″

HASELGROVE to MARSKE OLD CHURCH, seen in Boulder clay cliffs or on beach :—

Carb. limestone (scratched)	12 × 10 × 6″	in clay.	
,, ,, ...	... 28 × 20 × —″	in sand.	
Yoredale limestone (corals)	26 × 18 × —″	,,	
Carboniferous limestone	... 42 × 29 × 9″	,,	
Basalt	... 33 × 28 × 10″	,,	
Carb. limestone (corals)	... 19 × 19 × 8″	,,	
Basalt	... 24 × 16 × 6″	,,	
Carboniferous limestone	... 23 × 17 × 7″	,,	
Basalt	... 25 × 21 × 7″	,,	
Carboniferous limestone	... 35 × 27 × 15″	,,	
Basalt	... 34 × 26 × —″	in cliff.	
(*Surface quite flat and striated right across.*)			
Whin Sill	... 16 × 14 × 6″	in cliff.	
Yoredale limestone...	... 46 × 26 × 20″	,,	
Carb. limestone ...	... 30 × 16 × 10″	,,	
,, (beautifully scratched)	12 × 12 × 9″	,,	
,, ...	... 12 × 7 × —″	,,	
,, (scratched) ...	... 23 × 17 × —″	at foot of cliff.	
,, (coral) ...	... 49 × 38 × —″	in sand.	
Basalt (beautifully scratched)	43 × 23 × 20″	on beach.	
Carboniferous limestone	... 38 × 24 × 15″	in a rift in cliff.	

NOTE:—Regarding boulders recorded in Haselgrove, Saltburn, the small stream which flowed down this valley to the sea seems to

have been tapped in connection with some drainage works; no water seems to have come down for some time, and where the mouth of the stream was, there is now a bank of blown sand. Some of the boulders have apparently been removed, and the smaller ones must be covered with a thickness of sand.

ROBIN HOOD'S BAY:—From Bay Town to South Cheek on the beach.

Shap granite ...	...	36 × 23 × 19″
Mica schist ...	...	46 × 42 × 25″
,, ,, ...	...	42 × 24 × 22″
Shap granite ...	...	26 × 26 × 16″
Mt. limestone (corals)		36 × 26 × 12″
Shap granite ...	...	almost buried in sand.
Mt. limestone ...	...	40 × 25 × 20″
,, (*Producta*)		32 × 19 × 9″
Shap granite ...	...	60 × 31 × 27″ (saddle-shaped).
Basalt ...	...	28 × 18 × 11″
Mt. limestone ...	...	30 × 30 × 6″ above sand.
Shap granite ...	...	62 × 56 × 34″ (pyramidal shaped).

Reported by Mr. T. SHEPPARD, *Hull, and* Mr. H. MUFF, *Bradford.*

ROBIN HOOD'S BAY.—The following boulders, unless specifically stated, were found on the beach, but have undoubtedly been washed out of the Boulder clay which here caps the Lias shale.

Shap granite: 81 boulders varying in size from 42″ in diameter to a few inches. By far the greater proportion were found near the Cliff, though a few were seen amongst the numerous boulders which are only visible at low tide.

Pink granite: Close grained 43 × 30″ on the fore shore, just north of Mill Beck, buried in sand. Several smaller boulders were seen.

White granites: About six over a foot in diameter, three Dalbeattie. All the above well rounded.

Gneiss: Some up to 20″ in diameter, one with hornblende abundant. One nearly a foot long, seen in the Boulder clay near base of cliff, north of Mill Beck.

Augen gneiss. Two, averaging a foot in diameter.

Schists: A few seen, one garnetiferous 24 × 18″ at foot of cliff.

Quartz Porphyry: Armboth Dyke, two small boulders.

Porphyrite on the beach, 48 × 48 × 36″.

Do. of Fredericksvaam 8 × 5″, and many smaller ones seen.

February 1897.

Basalts: About thirty both fine and coarse-grained, averaging two feet in diameter, strewn on the beach, and one or two smaller, seen in the Boulder clay. No glacial striæ.

Rhomb-porphyry: One 12 × 10″, another 7 × 6″, and smaller fairly common.

Augite syenite: One $4\frac{1}{2}$ × $3\frac{1}{2}$″, and two or three smaller seen.

Carb. limestone: Fossiliferous of all sizes, both on beach and in cliff. One, north of Bay Town, about 60 × 48″, covered with sea weed.

Millstone grit: One 36 × 24 × —″ on the beach, and two in the clay.

Brockram: About eight, averaging 5″ across.

Mag. limestone (botryoidal variety from Rooker): Both in clay and on beach.

Trias sandstone: A small boulder in clay at base of cliff.

Gypsum: One, a foot across, at the base of the cliff; a pebble in the clay.

Lias: Local rocks and fossils occur in clay and on the beach.

Oolite: Chiefly 'Dogger,' in large boulders, both on the beach and in the cliff.

Black Flints: A few seen on the beach, but none noticed in the clay.

Reported by Mr. R. Law, F.G.S., *Fennyroyd Hall, Hipperholme.*

Hawks Clough.—Alt. 300 ft.:—

Calcite veinstone	6	× 4 ×	3″
Silurian grit, glaciated	5	× 3 ×	2″
Pink quartzite	2	× 2 ×	$1\frac{1}{2}$″

Mytholmroyd.—Alt. 300 ft.:—

Muncaster granite	3	× 3 ×	2″
Buttermere granophyre	10	× 7 ×	7″
Gneiss	3	× 2 ×	2″
Rhyolite	3	× $1\frac{1}{2}$ ×	1″
Quartz andesite	4	× 4 ×	3″
Felsite	3	× 3 ×	2″
Volcanic tuff	2	× 2 ×	1″

Brearley.—Alt. 285 ft.:—

Buttermere granophyre	6	× 5 ×	4″
Coarse granite	3	× 3 ×	2″

Upper Foot.—Alt. 350 ft.:—

Andesite	2	× 2 ×	$1\frac{1}{2}$″
Rhyolite	2	× 2 ×	1″

Branton.—Alt. 600 ft.:—

Granite	3	× 2 ×	2″

Naturalist.

HIGH GEE.—Alt. 600 ft. :—

Vein quartz	...	...	...	2 × 2 ×	$1\frac{1}{2}''$

BOULDER CLOUGH.—Alt. 300 ft. :—

Vein quartz	...	...	...	3 × 2 ×	$1\frac{1}{2}''$

(All the above boulders were collected by Mr. Thos. Broadbent, of Vicarage, Sowerby.)

LONG LEE QUARRY, WALSDEN VALLEY.—Alt. 900 ft. :—

Ennerdale granophyre	...	...	10 × 7 ×	4″
Volcanic ash	...	...	7 × 5 ×	3″
,,	...	...	5 × 5 ×	4″
Garnetiferous ash	...	...	12 × 10 ×	9″
Pink rhyolite	...	...	5 × 5 ×	5″
Borrowdale andesite	...	...	24 × 18 ×	14″
Buttermere granophyre	...	...	10 × 7 ×	4″
,, ,,	...	...	7 × 6 ×	4″
Porphyrite...	...	...	6 × 4 ×	4″
Eskdale granite, coarse	...	...	12 × 11 ×	8″
Muncaster granite, grey	...	...	10 × 6 ×	5″
Eskdale granite, red	...	...	12 × 9 ×	5″

STONEHOUSE FARM, WALSDEN VALLEY.—Alt. 800 ft. :—

Granite (built in wall)	...	...	10 × 6 ×	5″

FAR HOLLINGWORTH, WALSDEN VALLEY.—Alt. 750 ft. :—

Buttermere granophyre	...	...	14 × 12 ×	9″
Coarse granite	...	...	15 × 10 ×	8″
Granite	...	...	13 × 11 ×	7″

WINTER-BUT-LEE, WALSDEN VALLEY.—Alt. 600 ft. :—

Coarse granite	...	...	...	6 × 4 ×	2″
Granite	...	...	...	5 × 4 ×	3″
Granite	...	...	...	3 × 2 ×	1″
Quartzite	...	...	...	3 × 2 ×	2″

MILLWOOD, TODMORDEN.—Alt. 600 ft. :—

Felspar porphyry, grey	...	...	38 × 26 ×	29″

NORTH DEAN and ELLAND (Reported, 1893, p. 367).

'There are two or three pebble beds on the right-hand side of the Walsden Valley, one is near the canal at Winter-but-Lee, which is glacial drift. Most of the pebbles are very much rounded and water-worn; all are very small, the largest I have found in this drift pebble bed did not weigh more than a few pounds. It seems to lie in a hollow in the third millstone grit and is not more than 40 or 50 yards in length, the breadth cannot be determined, but the thickness appears to be from three to twelve feet. Immediately above this

pebble bed, at a height of about 180 feet above the level of the canal, there are two conical hills which have a very striking appearance, and are composed of water-worn pebbles. They have very much the same character as those mentioned above, but I have not succeeded, so far, in finding any foreign stones in them, though it is just possible they occur. These hills are much alike in shape and in size, being about 30 or 40 yards in diameter at the base. None of the pebbles that I have seen from this place show any ice-action. They nearly all consist of grit and sandstone.'

Accompanying this report is a one-inch sheet on which all the localities are indicated.

Reported by Mr. HENRY WHITEHEAD, *Littleborough.*

BLACKSTONE EDGE.

Borrowdale Volcanic ash... ... 5 × 4 × 3″

Reported by Mr. THOMAS SALTONSTALL, *Todmorden.*

MYTHOLMROYD.—Alt. 300 ft.

Herewith I send specimens of a large collection of glacial boulders extending from the viaduct, by Stocks, along Nest Lane and Roger Gate to Little Stubb, Stubb Clough (400′), and Stubb Bridge; covering an area two-thirds of a mile long and a quarter of a mile broad, as shown on the accompanying 6 in. Ordnance Sheet, No. 230.

[The specimens sent indicate the erratics usually found in the Calder valley: Buttermere granophyre, Eskdale granite, Old rhyolites, Borrowdale andesites, etc., besides some local rocks.—T. T.]

The contour of the valley here is noteworthy; at Hebden Bridge above, and at Breerley below, the valley is considerably narrower, so that the accumulation appears to lie in a basin. There are other gravel-beds one hundred feet above the present river-bed, but they contain no foreign rocks, at least I have not seen any.

Reported by Mr. JOHN BURTON, *Horbury.*

BATTYE FORD.—Alt. 153 ft.:—

The London and North-Western Railway Co. are constructing some arches forming a viaduct across the Calder valley, but in digging all the foundations except one they have only dug down to the boulders and laid the broad foundation-stones immediately upon it, and therefore thrown nothing out to view but soil and sand. Close to the river, on the north side, they have dug a deep foundation of large dimensions for a massive block of a pillar to rest upon, which has to bear one end of the iron girder which is to span the

river. From this foundation they have dug over one hundred tons of gravel and boulders which can now be seen in two heaps. I have carefully examined them, but have found nothing new; the boulders are similar to those in other parts of the valley which have been examined, the Buttermere granophyre being the most plentiful. I crossed the river and examined the foundations of the girder on the south side, but there the river runs close to the natural bank, so that the foundation, for the most part, rests on the solid rock and afforded no boulders.

Reported by Rev. W. Lower Carter, M.A., *Hopton, Mirfield.*

Battyeford.

I enclose the specimens of rocks from the Battyeford excavation exhibited at the Whitby meeting of the Yorkshire Geol. and Pol. Society. [They include:—Borrowdale andesites 10, Buttermere granophyres 2, Old rhyolite 5, Eskdale granites 4, Ennerdale granophyre 3, Felspar porphyry 1, Granite (not Lake Country) 1, and Carboniferous grit 1.—T. T.]

Reported by Mr. W. Hemingway, *Barnsley.*

Dearne Valley.—Old Mill Wharf; alt. 190-170 ft.:—

57	Gneissose granite	... 9 × 5 × 4″	oval.
58	Granite, coarse grey	... 8 × 5 × 3″	well rounded.
59	Felspar porphyry	... 6 × 5 × 5″	,,
60	do.	... 5 × 4 × 4″	,,
61	do. (vesicular)	... 4 × 4 × 3″	,,
62	Old rhyolite	8 × 6 × 4″	,,
63	Basalt	6 × 4 × 3″	,,
64	do.	8 × 5 × 4″	,,
65	Mountain limestone ...	7 × 5 × 4″	,,

Reported by Mr. J. H. Howarth, F.G.S., *Bradford.*

Bowland.—Alt. 600 ft.:—

[Borrowdale andesite.—T. T.] 4 × 3 × 3″ well rounded.

Reported by Mr. W. Cudworth, *Bradford.*

Bradford.—Lister Lane, near to Peel Park; alt. 600 ft.:—

'When excavating for main drain along north side of Peel Park, the corporation officials came upon a pocket of Mountain limestone boulders, at a depth of from five to six feet from the surface. They were mostly small in size, grey in colour, fossiliferous, all well polished and striated. They were enclosed in yellow (bleached) boulder clay.'

Reported by Mr. J. H. LOFTHOUSE, *Harrogate.*

HARROGATE.—Alt. 400 ft. :—

Excavation in Station Square 12 × 12 × 8 ft. deep, July 16th and 17th, 1896. Modern land surface, dark soil, 12 inches. Yellow clay, containing a large number of Millstone grit boulders about 3 ft. 6 inches. In this bed the boulders were small in size, and all of them more or less round as if waterworn. Dark blue clay containing angular and subangular boulders of Millstone grit much larger than those in the yellow deposit, also a number of Mountain limestone boulders of various sizes from 2 or 3 inches to 12 inches in circumference. There was a great difference between the yellow and blue deposit, not only on account of the colour, but also size, shape, and character of the boulders contained. I am certain there were none foreign to the drainage area. I examined many specially to find some trace of ice-marking, but failed to do so. From another excavation in the boulder clay capping the Yoredale beds of the Stray on Prospect Hill, a Millstone grit boulder, 14 × 9 ft., weighing 1½ tons, has been removed and placed with a suitable inscription, in the Valley Gardens. This boulder was saved from destruction and conveyed to its present resting-place at the suggestion of Mr. G. Paul, who also wrote the inscription.

Reported by Messrs. H. H. CORBETT, M.R.C.S., *and* PERCY F. KENDALL, F.G.S.

DONCASTER DISTRICT.

BALBY (Pit belonging to the Doncaster Brick Company) :—

In this pit about 40′ of very hard Boulder-clay is exposed. It is wholly unstratified and is closely packed with stones which are nearly all well-striated.

The most abundant stones are magnesian limestone. Most of these above the size of pebbles are picked out by the hewers and are burned for lime. The records show that about one wagon-load of the boulders is sent up for each 1,000 loads of clay.

Various rocks from the coal measures come next in abundance and constitute probably 90% of the remainder. They are chiefly (in order of relative abundance) sandstones, clay-ironstones (some with cone-in-cone structure), shales, and coal (including well-striated cannel). Millstone grit; carboniferous limestone; chert: fibrous gypsum, often in masses weighing one or two hundredweights: bunter quartzite; red and green poikilitic sandstones, some with salt pseudomorphs and ripple-marks.

The floor of the pit, covering several acres, is strewn with heaped-up boulders, and looking carefully over these we found 30 or

40 igneous rocks, they were, with two exceptions, andesites or andesitic breccias of Lake District types; the exceptions were:—1.—A block of the Quartz Porphyry of St. John's 14 × 11 × 8″ sub-angular and with no visible striæ; and 2.—A block of Red granite less than a foot long: its source has not been recognised. The largest stones are the coal measure sandstones, which range up to about two tons weight.

BALBY (Pit belonging to Mr. Gibson):—

This pit shows the same bed of Boulder-clay. In carefully looking over many thousands of stones which covered the floor of the pit we could find only five igneous rocks, all Lake District andesites.

BALBY (Pit belonging to Mr. Cockin):—

We examined some thousands of boulders here (not, however, so many as in the last pit), and could find no igneous rocks at all.

WOOD'S SAND PIT:—

Among the stones extracted from the boulder-clay at this place, was a Lake District andesite, and a specimen of Yoredale (?) limestone with *Hyalonema parallela.*

BALBY (Beastall's Sand-pit.)

In this excavation Boulder-clay rests on Triassic sandstone. We found Shap granite and Andesitic Agglomerate. These stones, we are happy to state, have through the instrumentality of the Doncaster Natural History and Microscopical Society, been secured for the town, and have been placed in the New Free Library.

Reported by Mr. PERCY F. KENDALL, F.G.S.

YORK DISTRICT.

BILBROUGH (Gravel-pit on the edge of the village).

Pebbles of carboniferous sandstone, limestone, and chert; triassic red sandstone; and magnesian limestone occur in the order of prevalence. A small boulder of Shap granite was found in a road-side heap near by.

BILBROUGH (Gravel-pit 400 yards E. of the windmill).

A sandy clayey gravel was exposed containing stones ranging up to 1 ft. 6 ins. in diameter. Many of the stones were broken, and the fragments slightly displaced. A few stones, chiefly carboniferous limestone, were scratched. The varieties, in order of prevalence, were:—carboniferous sandstone, limestone, and chert; triassic red sandstone; magnesian limestone; clay-ironstone; and dolerite (? Cleveland Dyke).

FULFORD, NEAR YORK (Gravel-pit south of Rose Hall):—

In this pit horizontally-bedded gravels rest on boulder-clay which is below the water level, and consequently invisible. The majority of the stones are carboniferous sandstones, then in order carboniferous limestone, chert, and a few Lake District andesites.

HIGH CATTON (Gravel-pit in supposed moraine):—

Gravel bedded at a high angle towards (apparently) about N. 30° W. The stones range up to about 6 in. or 7 in. diameter. They include carboniferous sandstone, limestone, and chert; flint; red triassic sandstone; Lake District andesites; magnesian limestone; brockram; and shap granite; Carrock Fell diorite. Some of the stones were highly polished, apparently by wind-action. One hundred and eight stones scooped up at random proved to comprise 62 sandstone (most, if not all, carboniferous) and 46 carboniferous limestone and chert.

HOLTBY (In railway-cutting through ridge of boulder-clay.)

This cutting is through typical boulder-clay of a reddish colour containing many stones. The stones rarely exceed a foot in length and only three were seen exceeding two feet. They were:—1, Carboniferous sandstone, 30 in. × 24 in. × ?; 2, Carboniferous limestone (well scratched); 3, Coarse andesitic agglomerate containing fragments of pink Rhyolite. It was very well rounded.

Taking the stones in order of prevalence they were:—Carboniferous sandstone, limestone, and chert; Keuper marl (some with salt-pseudomorphs); fibrous gypsum; red triassic sandstone; lias (some crowded with *Gryphæa incurva*; magnesian limestone; Lake District andesites; basalt two or three pieces (? Whin Sill); three Shap granite; one Scottish granite (? Loch Doone). A careful search failed to yield either chalk or flint.

REPORT OF THE EAST-RIDING BOULDER COMMITTEE, SEPTEMBER 1st, 1896.

The Committee, since the presentation of the last report, have noted upwards of 2,600 boulders, chiefly in Holderness.

TABLE AA.—Gives the results of the systematic survey of boulders in situ in the cliffs of Holderness between Spurn and Bridlington.

TABLE BB.—Gives an analysis of three representative beach groups.

TABLE CC.—Refers to Red Cliff (N. Ferriby), and is similar to AA.

TABLE DD.—Refers to Redcar and Saltburn, and is similar to AA.

The remainder of the report consists of notes of inland erratics.

TABLE AA.—BOULDERS NOTED ON THE HOLDERNESS COAST BETWEEN BRIDLINGTON AND SPURN POINT.

All the boulders tabulated were in situ in the clay, or were close to the cliffs from which they had recently fallen. For convenience of comparison the 36 miles of coast are divided into sections A, B, C, etc., usually indicated by some well-marked natural feature or landmark. The figures in light type indicate the actual number of boulders noted in each section. The figures in dark type give the relative percentage.

BOULDERS ONE FOOT AND UPWARDS IN DIAMETER.	A	B	C	D	E	F	G	H to O	P	Q	R	S	T	U	V	Totals.	Mean Percentage.
ORIGIN.	Spurn (Warren) to Kilnsea. J. W. Stather.	Kilnsea to Easington Lane end. J. W. Stather.	Easington Lane to Cliff House. J. W. Stather.	Cliff House to Out Newton. J. W. Stather.	Out Newton to Nevills Dyke. J. W. Stather.	Nevills Dyke to Hollym Mill. T. Sheppard & J. W. Stather.	Hollym Mill to Withernsea. T. Sheppard & F. F. Walton.	See 1895 Report for Details.	Hornsea to Atwick Gap. J. W. Stather.	Atwick Gap to 1st Gap N. of Atwick. J. W. Stather.	1st Gap N. of Atwick to Skipsea Peat-Bed. W. H. Crofts & T. Sheppard.	Peat-bed to Skipsea Brough. W. H. Crofts & T. Sheppard.	Skipsea Brough to Barmston Outfall. T. Sheppard.	Barmston Outfall to Earls Dyke. T. Sheppard.	Earls Dyke to Bridlington. T. Sheppard.		
	1 Mile.	2 Miles.	1½ Miles.	2 Miles.	1½ Miles.	1 Mile.	1½ Miles.	14 Miles.	1½ Miles.	1½ Miles	1½ Miles.	½ Mile.	2 Miles.	2 Miles.	3 Miles.	36 Miles.	
Carboniferous Limestone	2 13·3%	23 32·0%	21 36·8%	101 37·8%	12 40·1%	31 37·8%	17 30·3%	534 25·8	11 18·6%	7 12·2%	21 27·3%	1 2·8%	10 6·1%	1 4·0	1 2·7%	793	25·5%
Sandstone, Grits, etc., chiefly carboniferous	1 6·7%	11 15·2%	3 5·2	33 12·2%	6 20·0%	10 12·2%	5 9·0%	275 13·3%	12 20·3%	14 24·5%	29 37·6%	28 77·7%	95 58·3%	17 68·0%	26 70·3%	565	20·7%
Lias	1 6·7%	1 1·4%	6 10·6%	15 5·6	1 3·3%	3 3·6%	2 3·5%	345 16·8%	1 1·7%	— —	— —	1 2·8%	6 3·7%	2 8·0	2 5·4	386	10·4%
Chalk	1 6·7	10 13·9	2 3·5%	5 1·9%	1 3·3%	10 12·2%	5 9·0%	187 9·0	6 10·2	21 36·8	20 26·0%	5 13·9%	29 17·8%	1 4·0%	0 —	303	10·1%
Other Mesozoic Rocks, chiefly Sandstones	1 6·7%	9 12·5%	2 3·5%	10 3·7%	3 10·0%	9 11·0%	5 9·0%	104 5·0%	5 8·5	8 14·3	— —	— —	5 3·1	1 4·0%	1 2·7%	163	5·3%
Basalts and other eruptive Rocks ..	6 40·0%	15 20·8%	16 28·1%	77 28·8%	6 20·0%	19 23·2%	21 37·5%	554 26·7%	16 27·2%	6 10·5	6 7·8%	1 2·8%	15 9·2%	1 4·0%	6 16·2%	765	23·6%
Granites, Schist, Gneiss, etc.	3 19·9%	3 4·2%	7 12·3%	26 9·8%	1 3·3%	— —	1 1·7	71 3·4%	8 13·5%	1 1·7%	1 1·3%	— —	3 1·8%	2 8·0%	1 2·7%	128	4·4
TOTALS	15 100·0%	72 100·0%	57 100·0%	267 100·0%	30 100·0%	82 100·0%	56 100·0%	2070 100·0%	59 100·0%	57 100·0%	77 100·0%	36 100·0%	163 100·0%	25 100·0%	37 100·0%	3103	100·0

NOTES (TABLE AA).—In sections A and B several small boulders of Augite syenite (Lausvikete of Brogger) were observed sticking in the clay cliff; while 2 blocks (each 15 inches in diameter) and 30 smaller boulders of the same rock occurred on the shore.

In section D a boulder of Shap occurs on the beach, along with a fine sample of Augite syenite, 2 feet in diameter.

For details of section H to O see 1895 Report.

Sections P. and Q.—Many crushed-out chalk boulders in the cliff. A boulder of Augite syenite on the shore (2 ft. by 1½ ft. by 1 ft.), and several smaller specimens. Here also Rhomb porphyry was found in situ in the cliff.

The relative scarcity of the harder rocks in some of the sections North of Hornsea is due in part, at any rate to the efforts of the local road menders.

Three typical groups of boulders on the beach of the Holderness coast, illustrating the Selective and Arranging power of the waves.

TABLE BB.

BOULDERS
OF
ONE FOOT AND UPWARDS
IN DIAMETER.

	On the beach between Bridlington & Skipsea. T. Sheppard. Group I.	On the beach just South of Withernsea. J. Stears, M.Carmichael, W. S. Parrish. Group II.	On the beach near Earl's Dyke. T. Sheppard, J. W. Stather. Group III.	
Carboniferous limestone	12	52	210	
Sandstone, Grits, etc. (Probably all carboniferous) ...	134	9	40	
Lias	0	1	8	
Chalk and Flint	In large numbers	1	3	
Other Mesozoic rocks	—	4	3	
Basalts, etc.	2	42	485	
Granites, etc.	—	—	29	
TOTALS	148	109	778	1,035

TABLE CC.

Reported by Mr. J. W. STATHER.

NORTH FERRIBY.

In the boulder clay cliff on the Humber shore near North Ferriby, and on the adjacent beach, 373 boulders noted of 8 in. and upwards in diameter, the classification of which yields the following results:—

		Per cent.
69	Carboniferous limestones...	18·5
104	Sandstones, grits, conglomerate, etc. (probably nearly all from carboniferous or palæozoic rocks)	27·9
49	Sandstones, etc., probably nearly all of Mesozoic Age ...	13·1
21	Lias	5·9
10	Chalk (including 4 black flints)	2·6
88	Basaltic and other eruptive rocks	23·5
32	Granites, schist, gneiss, etc.	8·5
373		100·0

TABLE DD.

Reported by Mr. PAUL DAVIS and Mr. J. W. STATHER.

REDCAR AND SALTBURN.

In the boulder clay cliffs between Redcar and Saltburn (four miles) 133 boulders, a foot and upwards in diameter, were observed. The classification of these boulders yields the following results:—

		Per cent.
50	Carboniferous limestones...	37·6
28	Sandstones and grits of undoubtedly carboniferous age ...	21·1
12	Sandstones, origin doubtful, but probably in part carboniferous	9·0
7	Magnesian limestone	5·2
15	Lias	11·3
21	Basaltic rocks	15·8
133		100·0

Amongst the thousands of smaller boulders on the beach only three pebbles of granite were noted. Augite-syenite, Rhomb porphyry, garnetiferous schist, and other rocks common in Holderness, *not observed here.*

SALTBURN.

At Saltburn, at the side of the road down the cliff east of the pier, is a large boulder of shap granite (5 ft. × 5 ft. × 4 ft.) There are two others not so large in the Spa Gardens.

GUISBOROUGH.

At Guisborough there are two large boulders of shap granite in the Abbey Gardens.

SNEATON, NEAR WHITBY.

A boulder of shap granite (4 ft. 6 ins. × 3 ft. × 2 ft.) at side of highroad, half a mile south of the village; 400 ft. above sea-level.

Reported by Mr. W. S. PARRISH.

SWANLAND.

This village is situated on the Wolds (overlooking the Humber), 265 feet above sea-level. None of the boulders noted show striations, and all have been moved; but probably only from the adjacent fields.

1. A block of andesitic tuff, near the pinfold (4 ft. × 2 ft. 4 in. × 2 ft. 6 in.).
2. A rounded block of red granite (not Shap) at corner of Ferriby Road (2 ft. × 1 ft. 6 in. × 2 ft. 4 in.).
3. A block of Whinstone (basalt), near Mr. Carr's house, used as a seat. (4 ft. 4 in. × 3 ft. × 2 ft.).
4. A gritty sandstone at the west end of the village. (3 ft. 5 ins. × 2 ft. 8 in. × 2 ft. 3 in.).

5. Also several more boulders of whinstone (smaller than above) near the pond, and a sandstone (1 ft. 6 in. × 1 ft. 6 in. × 2 ft.).

Reported by Mr. F. F. Walton, F.G.S.

Coniston (Holderness).

At road-side, near the pond, north of the village is a boulder of fine-grained white granite, somewhat rounded and weathered reddish, 2 ft. 9 in. × by 2 ft. 3 in. × 1 ft. 3 in.

Skirlaugh.

On roadside, outside 'Carpenters' Arms,' a boulder of basalt, 18 × 15 × 15″.

At gateway, opposite above, a rounded basalt, 17 × 15 × 12″.

Preston (in Holderness).

The footpaths on each side of main street are paved with boulders from 2 ft. in diameter downwards. About three out of every four are basalts, the remainder mostly carboniferous sandstones.

There is a group of four boulders at north end of village at corner of Sproatley Road, as follows:—

No. 1.—Basalt, irregular, oblong, and flat on one side, 5 ft. × 2 ft. 6 in. × 2 ft.

No. 2.—Basalt, rounded, 2 ft. 4 in. × 1 ft. 5 in. × 1 ft. 4 in.

No. 3.—Basalt, rounded, 2 ft. 1 in. × by 1 ft. 8 in. × 1 ft. 8 in.

No. 4.—Dolerite (?), 2 ft. 3 in. × 1 ft. 8 in. × —″.

Also at corner of Burstwick Road there are two basalts, each about 2 ft. in diameter.

Atwick. *Reported by* Mr. W. H. Crofts.

A boulder of shap granite, near the old village cross, 12 × 9 × —″

Hornsea. *Reported by* Mr. Jno. Nicholson.

A group of boulders in Harker's Yard (near the old Cross), as follows:—

1. Carboniferous limestone (?). Is well-rounded, but has one side as flat as a table. (4 ft. × 2 ft. × 1 ft. 2 in.).
2. Basalt. (4 ft. × 2 ft. 6 in. × 1 ft. 6 in.).
3. Carboniferous limestone. (1 ft. 6 in. × 2 ft. × — in.).
4. Basalt. (1 ft. 6 in. × 1 ft. × 10 in.).

Hornsea.

At south end of the old village, at junction of the Hull Road with the main street, a boulder of dolerite (4 ft. 9 in. × 3 ft. 6 in. × 1 ft. 6 in.).

Flinton.

A sandstone boulder (2 ft. × 2 ft. 6 in. × 1 ft. 9 in.).

A PROBABLY NEW SPECIES OF AZECA (AZECA ELONGATA) IN THE BRITISH ISLES.

JOHN W. TAYLOR, F.L.S.,
Membre Honoraire de la Société Malacologique de France.

In the monograph of the genus *Azeca*, published by J. R. Bourguignat in 1850, he divides the species he considers as belonging to this genus into four sections or series, which he distinguished as *Azecastrum*, *Alsobia*, *Agraulina*, and *Hypnophila*.

Our suggested new species belongs to the section *Azecastrum*, which is especially characterised by a strongly dentate aperture, and is restricted in its distribution to Central and Northern Europe.

The proposed new species to which I am desirous of directing the especial attention of conchologists, in the hope that more specimens will be forthcoming, may be known as

Azeca elongata sp. nov.,

and described as having a shell of an elongate form, composed of about $9\frac{1}{2}$ slightly convex whorls, increasing gradually in size, of a yellowish-brown or chestnut colour, smooth and glossy, with very indistinct striæ; periphery rounded, spire produced and blunt at the apex, suture impressed, mouth pyriform, acutely angled posteriorly with a broad marginal callosity margined on the penultimate whorl and columella by a raised thread-like rib, and furnished with a strong and somewhat posteriorly inclined denticle on the middle of the outer margin, an anteriorly convex, simple pointed denticle at the base of the columella, and on the penultimate whorl there is a small denticle about midway between the outer lip and the columella. Length 9 mill., breadth $2\frac{1}{2}$ mill. Aperture $2\frac{1}{2}$ mill. long.

Azeca tridens Pult. × 4.
Ilkley, nr. Leeds.
for comparison with
Azeca elongata.

Azeca elongata Taylor × 4
Ingleton, Yorks.,
Collected by
Mr. A. Leicester.

Compared with *Azeca tridens* this form may be immediately recognised by its elongate shape, which markedly contrasts with the almost exactly pupæform shape of the typical *A. tridens*. There are $9\frac{1}{2}$ whorls instead of seven only, and they also increase more slowly in size, the last whorl being comparatively smaller than in Pulteney's species.

The aperture is more broadly expanded than in *A. tridens*, and not nearly so compressed posteriorly, and its armature is strikingly

distinct, for while the denticle upon the outer lip is stronger, and the tooth at base of columella though of similar size is different in character, there would seem to be a total absence of the peculiar winding columellar lamella which is so conspicuous a feature in *A. tridens*, and has been supposed to represent the Clausium of the Clausiliæ, and which I figured at p. 128 of my Monograph. Its rounded basal termination can be seen just above the columellar denticle in the figure of *A. tridens*. On the penultimate whorl there is merely a slight denticle to represent the twin spirally winding lamellæ present in its ally.

The first specimen seen of this species was exhibited at a conversazione of the Chester Natural History Society in 1886, as *Pupa secale*, and forwarded to me at my request by Mr. G. W. Shrubsole, who informed me that the specimen had been found in North Wales.

Another specimen was detected in 1895 in the collection of Mr. Alfred Leicester, of Liverpool, by Mr. R. Standen, and at his suggestion forwarded to me. This last specimen was found by Mr. Leicester in 1893 by a stream-side in a wood at Ingleton, Yorkshire, and is absolutely identical in its character with the Welsh specimen. The illustration is from a photograph of the Ingleton example.

THE LITTLE OWL IN YORKSHIRE.

JAMES BACKHOUSE, F.Z.S., M.B.O.U.,

Daleside, Harrogate.

REALIZING to the full the meagre nature of the chronicles relating to the occurrence of the Little Owl (*Athene noctua*) in Yorkshire, it is with no little satisfaction that I have to record the capture of a beautiful example near York.

The specimen in question is an adult female, and was shot in the neighbourhood of Escrick, near York, on December 24th, 1896, being taken in the flesh to Mr. Edward Allen, of Feasgate, who has mounted it very ably.

The Little Owl (*Athene noctua*) is resident throughout most of Europe south of Scandinavia, but in this country occurs only as a very rare visitor. The accidental occurrence in Yorkshire of this peculiar little bird is the more interesting, following that of other rarities, such as Macqueen's Bustard, etc., and one can hardly doubt that similar causes have been at work in the case of *Athene noctua*, though presumably it hailed from much nearer home than was the case with *Otis macqueenii*.

CAREX AQUATILIS Wahlb. IN LAKE LANCASHIRE.

ARTHUR BENNETT, F.L.S.

Croydon, Surrey.

AMONG a large parcel of Irish plants sent me by Mr. Praeger were two British from Lake Lancashire, 'Windermere, 1895, R. Lloyd Praeger,' both of which are additions to Mr. Baker's Flora of the English Lake District, 1885, one being *Calamagrostis lanceolata* Roth., the record of this not having been confirmed (I have specimens gathered at Dufton, Westmorland, by Prof. Oliver) as occurring at Kirkby Lonsdale.

Mr. Praeger has kindly furnished me with the following note on the locality for the two species :—'Edge of Blelham Beck, Windermere, Lancashire. The stream flows from Blelham Tarn into Windermere, debouching at the Ambleside end, half-a-mile south of the mouth of the River Brathy. If you row up the stream you will find *Carex aquatilis* growing on the north bank, a short distance from the mouth. *Calamagrostis* grows on the south bank a little further up. The sedge was found by Miss Knowles and myself: the grass by me. Date August 8th, 1895.' The ground immediately around the Tarn is about 500 ft. above 'sea-level,' the depth of the Tarn is given at 138 ft. in the Bathymetrical Survey of the English Lakes by H. R. Mill (Geographical Journal, July and August, 1895). The Tarn is fed by small streams, and also connected with a smaller Tarn near 'Randy Pike.' The highest land which seems to drain into the Tarn is about 1,000 ft. from Claife Heights.

The other, *Carex aquatilis* Wahlb., is the lowland form. Mr. Baker notes under L. Lancashire, 'In the Whitehaven Catalogue, *C. aquatilis* Wahlb. is reported from St. Bees, but no doubt the name is incorrect, as it is a high-mountain species,' p. 221.

At the time this was written no one would have thought of accepting such a plant without specimens, for 25 years before this we find it even doubted whether we really had Wahlenberg's species in Britain (see Hooker and Arnott, Brit. Fl., ed. 8, p. 508, 1860), and by so good an authority on the genus as Dr. Boott.

Its occurrence in Wales (about 52° 15″) was to some extent a surprise, but still more so when it was found to be an Irish plant, and so far south as Kerry. It seems a very interesting case of distribution when we come to look at its European range; I know of no station south of Livonia and Ingria (St. Petersburg) in Russia, and this cannot be under 57° N. Lat. We may call Kerry 52°; but

the flora of Kerry and that of Livonia or Ingria are quite unlike as to other species.

The first Irish specimens were named by a good continental authority '*C. acuta* var. *gracilis* Uchtritz'; is it possible that it exists under this name (or that of *stricta*, which many of the Scottish lowland specimens were first named) in herbaria? Why does it not occur in Denmark and Lithuania? In the Comp. Cyb. Brit. Mr. Watson notes that both himself and Dr. Boott had some hesitation in combining 'the *aquatilis* of the Clova mountains with the lowland plants from the Clyde and Almond rivers,' and he remarks that Dr. Boott has made a note against two specimens from the Almond river, 'very like *stricta* (Lam.) of America.' Even more like the American plant are those from the Perthshire Isla, West Sutherland, and Donegal. The specimen I possess for Mid Perth, named by Dr. Almquist '*C. aquatilis epigejos* Laest. f. videtur' (on the labels themselves) are puzzling. In the Fl. Fennica, p. 270 (1895), Dr. Almquist says of this 'Genuina (= *C. aquatilis* × *rigida*) apud nos incerta videtur.' If this statement is correct, it seems difficult to accept the Scotch plant as such, coming as it does from 'The White Myre of Methven.' One can scarcely think of *rigida* in such a position; *aquatilis* would be likely enough. The Perth plant, to me, looks much more like what would be produced by such plants as *aquatilis* × *Goodenowii juncella*. Almquist says that this hybrid = *C. arcuata* Laest. (Bid. Kann. Törnea Lappm., p. 43, 1860). On a specimen named by the late Dr. B. White 'the mountain form of *C. aquatilis*'! from Caenlochan, I noted on the label, 'Is it not near *C. limula* Fr.? What is this? *C. aquatilis* v. *epigejos* Fr.? or *C. rigida* v. *inferalpina* Laest.?'

In Fries' original description of '*Carex epigejos*, Botaniska Notiser, p. 105, 1843,' he gives as a synonym '*C. aquatilis* Hooker, Brit. Flora, ed. 4, p. 336'; as the then known station for *aquatilis* was 'Tableland above Caenlochan, Forfar,' it is likely enough that Fries had seen a specimen. Of course, this cannot be absolutely relied on, as he also gives as a synonym '*C. aquatilis epigejos* Laest.! Act. Holm., p. 339, 1822.' This is now known to be a form of *aquatilis*, not *salina*.

Dr. Almquist has written on this label—'Certainly to be brought to the former; leaves very like the latter.' I quite agree that this cannot be put to *aquatilis*. Both Nyman and Almquist agree that Fries' *epigejos* = *C. bicolor* Nyl. (non All.), and is referable to *salina*. My remarks were noted on the label in August 1895. I now think that my middle suggested name may be the correct one (i.e., *epigejos* Fr.), but without specimens before one named by the author,

certainty is impossible in this difficult section. But looking at the specimen now, I see no serious objection to its being a *salina* form. This plant is very different to the specimens named '*C. rigida inferalpina*' by Dr. Almquist, which are clearly *rigida* forms (not *salina*).

I have a specimen from 'Lough Ree, Co. Westmeath, R. M. Barrington, 1885,' which was named in 1888 '*Carex turfosa* Fr. f. *elongata*,' by Dr. Lange; placing this by the side of Dr. White's Methven specimens, I can see very little difference; in the Perth plant the glumes of the male flower are fringed with a pale colour, while those of the Ree plant are only obscurely so.

In my large series of British *aquatilis* for all parts of its known area there are many differences, but they shade off one into the other, and I cannot see how we can make out any sub-specific differences to the Scandinavian forms (of which also I possess a good series); my Asiatic and American material is not extensive enough to judge by.

DISTRIBUTION OF CAREX AQUATILIS Wahlb. IN GREAT BRITAIN AND IRELAND.

Vice-County.

46. Cardigan. A. Ley, specimen.
68. Cheviot. Brotherston, Bot. Loc. Rec. Club, 1876, 171! B.M.
69. Lake Lancashire. Praeger, specimen.
72. Dumfries. Cole, specimen.
73. Kirkcudbright. McAndrew, specimen.
76. Renfrew. P. Ewing and McKay!
77. Lanark. Horn, specimen.
78. Peebles. Druce, specimen.
79. Selkirk. Brotherston, l.c.! B.M.
80. Roxburgh. „ „ p. 111, 1875! B.M.
81. Berwick. „ „ B.M.
84. Linlithgow. Greville, specimen.
85. Fife. Dewar, specimen.
86. Stirling. Kidston and Stirling, specimen.
88. Perth Mid. Marshall, specimen.
89. „ East. F. B. White, specimen.
90. Forfar. Greville, specimen.
92. Aberdeen S. Hanbury, specimen.
92. „ N. Roy, Exch. Club Rep., p. 16, 1870. B.M.
95. Moray! J. Keith, Exch. Club Rep., p. 20, 1871.
96. Easterness. Druce, specimen.
99. Dumbarton. Watt, specimen.
108. Sutherland W. Marshall, specimen.
109. Caithness. Grant, specimen.

March 1897.

IRELAND.

County Antrim. Praeger, specimen.
„ Donegal. Hart, specimen.
„ Leitrim. Stewart, specimen.
„ Roscommon. Stewart, specimen.
„ Cavan !
„ Galway. Marshall, specimen.
„ Kerry. Scully, specimen.

In Hooker and Arnott, 1860, 'Mountains of Clova, and by the bridge at Clova,' the only stations given.

In the British Herbarium at South Kensington are two specimens of *C. aquatilis* from D. Don. On one the record is '*C. stricta* var., new species'; on the other '*Carex*, perhaps only a var. of *stricta*.' These came from the sale of the Linnean Society in 1863.

NOTE—MOLLUSCA.

Testacella scutulum at Adel.—I am pleased to put on record the occurrence of this carnivorous slug at Adel, a specimen of which, preserved in spirit, has been sent to the Leeds Museum by Mrs. Eddison of that place. Dr. Eddison tells me that specimens of this slug were collected in his garden, at Adel, some ten years ago and forwarded to a predecessor of mine, so that the discovery of *T. scutulum* in the Leeds district undoubtedly belongs to this gentleman.—H. CROWTHER, The Museum, Leeds, February 20th, 1897.

NOTES—ORNITHOLOGY.

Sparrow Hawk on Telegraph Wire.—From a railway carriage window, just as the train steamed out of Woodlesford Station on the afternoon of Monday, February 25th, I saw a Sparrow Hawk (*Accipiter nisus*) balancing itself on the outer of the telegraph wires, with its face towards the train. It seemed to have a difficulty in retaining its hold, whether from the thinness and hardness of its support or from fear of the rattle of the train and the puffing of the steam which blew directly on to it, I cannot say.—H. CROWTHER, The Museum, Leeds, February 23rd, 1897.

Sooty Shearwater at Bridlington.—Mr. Edward Allen, of Feasegate, York, has kindly presented to the Leeds Museum two specimens of the Sooty Shearwater (*Puffinus griseus*), which were shot at Bridlington in December, 1895. As it has become customary to keep records of the deposition of British specimens of this bird, long and until recently considered to be the young form of the Greater Shearwater, I forward this note. By many of our Yorkshire ornithologists the opportunity to examine these birds in Leeds will be highly valued.—H. CROWTHER, The Museum, Leeds, February 23rd, 1897.

Flamborough Bird-Notes.—During this winter we have had several Redshanks (*Totanus calidris*), more than I have seen for many years; they arrived here when we had that great downfall of snow, and the rough weather which lasted so long and came with such tremendous and terrible force on our shores, although I am glad to say we have had no shipwreck. Also large numbers of Little Auks (*Mergulus alle*) came along our coast, and a great many were blown on to the land. Several Ringed Dotterels (*Ægialitis hiaticula*) arrived on the coast. A very large Eagle has been seen on the Headland for weeks. I should imagine it to have been the one shot the other day at Boynton. Enormous quantities of Guillemots (*Lomvia troile*) have arrived on the cliffs at Flamborough. February 1st, and have been seen nearly every day since.—MATTHEW BAILEY, Flamborough, February 18th, 1897.

Naturalist.

In Memoriam.

THOMAS HICK, B.A., B.Sc., A.L.S.

BORN 5TH MAY, 1840; DIED 31ST JULY, 1896.

ANY retrospect I may attempt of a life of fifty-six years so remarkable in its lesson as a triumph of mind over matter—though the subject of it called himself a materialist very nearly, if not quite, to the last—must be inadequate; for, though I am almost the one oldest scientific friend of his left—Prof. W. C. Williamson, Dr. Spruce, James Abbott, and James W. Davis, all no more!—I only knew Thomas Hick at all intimately, or saw him constantly, during the lustrum 1868 to 1873. I moved about much after that, whilst he, leaving Leeds for Harrogate, where he resided up to 1885, then migrated to Manchester upon his obtaining the Assistant-Lecturership in Botany at Owens, under Williamson. For a civilian his was a battleful life, full beyond the average in controversial effort and strenuous inquiry. As a biologist, where Huxley led he followed; the method, fidelity to truth, fearlessness in experiment and controversy of that Wellington in the esoteric fields of Cosmos, ever evoking his profoundest admiration and faith.

As a boy, of humble but respectable parentage, Hick was originally destined for manual labour; but what one may be forgiven for calling a lucky accident in the mill where he first went to work involved an injury to his left hand and loss of some fingers. This led him to become a pupil, a teacher, and eventually head master of the Lancasterian School at Leeds. When I first knew him he was studying, with more or less definite ideas, for the Degrees he afterwards attained. Science-teaching in schools was then coming to the front as a necessary in the curriculum of middle-class education; and in the late sixties and early seventies he upheld the banner of nature-study by giving to others in night-classes at the Leeds Mechanics, at Bradford, and elsewhere, a sufficiency of that knowledge on plant life which a more spontaneous curiosity and enthusiasm had led him to seek after for himself. Much of the best work of his life was done in this way, infecting others by his force of character and graphic aptitude in expressing what he knew; before he had accomplished any of what it is the custom to style 'original' investigation—definite little secrets wormed by tireless observation from the Grand Arcana of Life.

Awakening interest in botany, for my early love like that of many another youth (Hick being seven years my senior) was entomology and ornithology, first brought me into contact with him

in 1868. He, William Todd, and James Abbott were already concerned with problems in geology and theology cognate to life,

Yours Sincerely
Thomas Hick

and soon after we had 'kidneyed' to one another, Huxley delivered himself of that famous Edinburgh address on 'The Physical Basis of Life,' which stirred up into a blaze the smouldering clerical

animosities which Darwin had, in another form, first raised with his 'Origin of Species,' some seven years previous. Early in 1870, Hick along with Todd, James W. Davis, Abbott, W. Watson (another schoolmaster), and myself, formed ourselves into a small Mutual Improvement Society, meeting fortnightly at our homes in turn to read papers and discuss points in Science Progress. This, which we dignified by the name of the Leeds Scientific Association, was, I believe, in part the origin of the Leeds Naturalists' Society. Before that, for years, the nature-students of Leeds, mainly workingmen whom the 'Philosophical' gentlemen of the time in no way recognised, used to meet at a Hall or Museum behind the present Corn Exchange. Davis and Hick first met there, Todd being their introducer. None of the friendships there formed with Hick were, I think, ever broken or even strained, Hick and Davis's characters being equally unjealous, earnest and sterling. For some years Hick was the reviewer of science books for the 'Leeds Mercury,' and many of his trenchant and well-informed critiques are remembered yet, notably that on 'As Regards Protoplasm'—a reply to Huxley's 'Lay Sermon,' by Hutchison Stirling. Hick's first original paper, about 1880, was, I recollect, on an overlooked point in the morphology of *Ficaria verna*. It showed an unusual gift of exact observation, and foreshadowed the brilliancy of later papers in the 'Journal of Botany' on the Continuity of Protoplasm in the tissues of certain Marine Algæ. He was too careful and self-critical a worker to produce voluminously; albeit his later researches in the field of Fossil Botany at Manchester, for which more credit is his due than any mere list of his *obiter dicta*, as the *Aide* of a rather jealous Chief would seem to warrant, must prove a sufficient and enduring monument.

Thomas Hick was a singularly simple-minded, unaffected, transparently-honest Yorkshireman; strangely little exalted for one with such a gift of brain. His lectures were always marvels of lucidity and arrangement. A trifle blunt of speech and never quite losing his Yorkshire accent, he was respected by who listened to him, and loved by who knew him socially. Very matter-of-fact most people would have said, yet, at times, I am reminded, a vein of sentiment (as mayhap is the case with most of us) occasionally shewed itself running through the solid strata of his mental organism. If this seems to belie,—to be at variance with outspoken materialism, we may reflect that, as yet, no scientific analysis of Spirit has been made. This sensibility to the beauty of faith or feeling came to the surface at times in a moistened eye or a phrase spoken with 'bated' breath, and unexpectedly: who shall say that whatever arouses it has *not*

March 1897.

its source in a fact, for which science, on its present plane, has no precise terms? I would not wrong by a tittle so fine a character as Hick's in the memories of those near, and while he lived, dear to him; but I would not have it understood that my summed-up impression of him was aught other than one of Appreciation: and a Recognition of the singular stability and depth of his conviction, often reiterated to those mentally sib, that Matter was All, and all Matter, subject to partly unrevealed laws of Cosmical Evolution; and that Mind, Soul, Spirit—whichever we term it—though possibly more than a mere property of matter known as yet by certain relations to it, was equally an evolutionary essence, probably subject to similar or parallel laws as yet incapable of formulation by a faculty which has not yet attained the acme of Possibilities. Hick had, years ago, more than a glimpse of that 'Natural Law' of 'sympathetic relationships' in a 'Spiritual World' which has in recent years found tentative expression in such Physico-psychologic as that of Drummond and Joseph Morris. The motto of Who would be wise and true to Nature, for maybe ages yet, must be—Enquire, Observe, Ponder, re-enquire, re-observe, re-study, marking off precisely and reverently the eminences we each of us reach, suspending any 'final judgment' till in our turn *apud plures*. What more can we do than honestly strive To Know, or cease to be—the end of dormance of faculty—what we May Be, with a fool's cry 'We are at the End!' Beautiful World! beautiful gift of Brain to comprehend it! are they not worth any effort, while environment forbids not? The spirit of Thomas Hick seems, as I hold the pen, to inspire me to embody this, his life's creed, in words. It should offend no one's susceptibilities, for it was in him, and for all who live by it will be, manful, soulful, honest, and without fear.—F. ARNOLD LEES.

NOTES AND NEWS.

We hear from the Rev. E. Adrian Woodruffe-Peacock, of Cadney, Brigg, that Messrs. Nimmo have asked him to edit a new edition of Mr. Lowe's 'British Grasses.' He would take it as a great kindness if botanists who have specimens of the following grasses in their collections would lend or present them to him for comparison. All the specimens lent shall be carefully returned. The species required are:—*Setaria glauca* Beauv., *Apera interrupta* Beauv., *Spartina Townsendi* H. & J. Groves, *Homalocenchus oryzoides* Mieg., *Phalaris paradoxa* L., *Anthoxanthum Puelii* Lecoq, *Deyeuxia strigosa* Kunth., *Ammophila baltica* Link., *Deschampsia discolor* Roem. et Schultz., *Briza maxima* L., *Poa stricta* Lindb., *Poa laxa* Hænke, *Poa glauca* L., *Poa Balfouri* Parnell, *Poa chaixii* Vill., *Poa palustris* L., *Festuca ambigua* Le Gall., *Festuca myuros* L., *Festuca dumetorum* L., *F. heterophylla* Lam., *Bromus tectorum* L., *B. racemosus* L., *Lolium linicola* Souder, *Agropyron pungens* Roem. et Schultz., *A. acutum* Roem. et Schultz. Mr. Peacock should be communicated with before sending specimens; everyone will be thanked in the letterpress for the use of their material.

Naturalist.

THE CONSTITUENTS OF THE NORTH LANCASHIRE FLORA, 1597(?)-1893.

LISTER PETTY,
Ulverston.

ELEVENTH PAPER.

Leontodon hispidus L. Clarke's First Record, 1634.

1857. Phytologist, 257. As *Apargia* Willd.—Humphrey Head, Dr. Windsor, and repeated **1860.** Phytologist, 257. **1864.** Linton, Lake Country, 324. 'Common,' no locality. **1882.** J. of B., 347. 'Lake Lancashire,' W. F. Miller.—But where? and yet men complain of injustice in botanical compilations.

Leontodon autumnalis L. C.F.R., 1629.

1864. Linton, Lake Country, 324. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 121. Ascending to 600 yards on Coniston Old Man (? J. G. Baker).

Taraxacum officinale Web. C.F.R., 1548.

1864. Linton, Lake Country, 324. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Taraxacum lævigatum DC.

1874. J. of B., Miss E. Hodgson. Sand hills, North End, Isle of Walney.

Lactuca virosa L. C.F.R., 1570.

1874. J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 122. Very fine on the red sandstone walls of Furness Abbey, and in the adjacent quarries, W. Foggitt; J. C. Melvill; J. G. Baker.

Lactuca muralis Fresn. C.F.R., 1633.

1861. Phytologist, 260—as *Prenanthes.* Humphrey Head, Dr. Windsor. **1864.** Linton, Lake Country, 324. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. Grange-over-Sands.

Sonchus oleraceus L. C.F.R., 1538.

1775. Jenkinson, Desc. Brit. Pl., 186. 'I found it in company with John Benson, Esq., and others amongst the ruins of Furness Abbey.' **1864.** Linton, Lake Country, 324. 'Common,' no locality.

Sonchus asper Hoffm. C.F.R., 1833.

1874. J. of B., Miss E. Hodgson. No locality.

Sonchus arvensis L. C.F.R., 1562.

1864. Linton, Lake Country, 324. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

For **Tragopogon pratensis** see 'Naturalist,' 1895, p. 326. There are no records previously for North Lancashire.

Lobelia Dortmanna L. C.F.R., 1677.

Gladiolus lacustris Dortmanni Clus. (Ray). First reported by Lawson to Ray, April 1688.

1690. Ray, Syn., ed. i., 208. Windermere, plentifully. Lawson, and repeated **1695.** Camden, ed. Gibson, 819. **1696.** Ray, Syn., ed. ii., 281. **1718.** Derham, Phil. Lett., 217. Lawson's letter to Ray in full. **1724.** Ray, Syn., ed. iii., 287.* **1744.** Wilson, Syn., 166. Windermere and other Lakes. **1775.** Jenkinson, Brit. Pl., 212. **1787.** Withering, ed. ii., 895. Coniston Water and Windermere, Woodward: and repeated **1796.** Withering, ed. iii., 245, and in every other edition. **1805.** Turner and Dillwyn, Bot. Guide, ii., 366. **1835.** Watson, New Bot. Guide, i., 301. **1842.** Wordsworth, Scenery, 47. **1843.** Jopling, Furness and Cartmel, 266. Woodward's localities repeated. **1848.** Ray Corresp., Ray Soc., 197, et seq. Lawson's letter to Ray. **1861** (1855). Martineau's Guide, 185. **1864.** Linton, Lake Country, 325. 'On all the great lakes.' **1874.** J. of B., Miss E. Hodgson. Head of Coniston Lake. **1885.** Baker's Flora, 142. **1889.** Westm. Notebook, 111. Lawson, repeated in 'Early Westm. Pl. Rec.'

NOTE.—Otley only gives the species as occurring in the lakes—no locality.

Jasione montana L. C.F.R., 1629.

1843. Jopling, Furness and Cartmel, 266. Between Newby Bridge and Fell Foot, Wilson. **1864.** Linton, Lake Country, 325. Not uncommon, but partial. **1874.** J. of B., Miss E. Hodgson. Penny Bridge lanes; Wall top, Bouth, Rusland. **1885.** Baker's Flora, 142. Coniston. **1885.** J. of B., 300. Skelwith, A. W. Bennett.

Campanula latifolia L. C.F.R., 1633.

1843. Jopling, Furness and Cartmel, 266. In the Holker Woods, Wilson. **1861.** Phytologist, 258. Seen in one place near Cartmel, C. J. Ashfield. **1864.** Linton, Lake Country, 325. Coniston. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1874.** J. of B., Miss E. Hodgson. Lindale Hill, near Ellerhow, Cartmel, Mrs. J. K. Hodgson; Bigland Woods; wet hedges about Stoney Crag near Ulverston.

Campanula rotundifolia L. C.F.R., 1597.

1861. Phytologist, 237. Rougholme. C. J. Ashfield. **1864** Linton, Lake Country, 325. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. Rougholme is a headland to the west of Humphrey Head.

Vaccinium oxycoccus L. = *O. palustris* Pers. C.F.R., 1597.

[Hudson and others chronicle this from Lancs., but too vaguely to enter here]. **1843.** Jopling, Furness and Cartmel, 265—as *O. palustris* Pers. Stribers mosses, Haverthwaite, Wilson. **1864.** Linton, Lake Country, 325. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. Kirkby Moor. **1885.** Baker's Flora, 145. Wilson and Miss Hodgson repeated. High marshy ground over Coniston, Miss S. Beever. In 'Hortus Inclusus,' 1887, 60-61, Mr. Ruskin mentions planting a large area, on the moor above Brantwood, with this species. The plants were received from Miss Beever.

No record for *V. Vitis-idæa* L.

Vaccinium uliginosum L. C.F.R., 1670.

1843. Jopling, Furness and Cartmel, 265. On Reake mosses near Holker, Wilson; and repeated. **1885.** Baker's Flora, 144.

Vaccinium myrtillus L. C.F.R., 1570

1864. Linton, Lake Country, 325. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Andromeda polifolia L. C.F.R., 1597.

[Mentioned as a Lancashire plant by several of the old botanists, but not located for North Lancashire—if located at all]. **1796.** Withering, ed. 3, 398-9. Causeway Moss and Rusland Moss, Furness Fells, Jackson; and repeated in all subsequent editions. **1805.** Turner and Dillwyn, Bot. Guide, ii., 368. **1835.** Watson, New B. G., i., 301, but ascribed to 'B. G.' **1840.** Baxter, Phænog. Bot., v., 361. **1843.** Jopling, Furness and Cartmel, 267. Ellerside Mosses, Wilson. **1874.** J. of B., Miss E. Hodgson. Angerton Moss, Rev. F. A. Malleson. Ireland Moss. Stockbird Moss, and on all the good peat tracts between Ulverston and Haverthwaite. **1885.** Baker's Flora, 143-4. Jackson, Wilson, and Miss Hodgson repeated.

Calluna Erica DC. C.F.R., 1551.

1842. Evans, Furness and Furness Abbey, 26. Peaty moors (Atkinson inferred). **1864.** Linton, Lake Country, 325. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Erica Tetralix L. C.F.R., 1570.

1864. Linton, Lake Country, 325. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Erica cinerea L. C.F.R., 1597.

1843. Jopling, Furness and Cartmel, 267. Rocky pastures; common in Furness and Cartmel, Aiton and Wilson. **1861.** Phytologist, 237. Humphrey Head, C. J. Ashfield. **1864.** Linton,

Lake Country, 325. 'Common,' no locality. **1874.** J. of B. Miss E. Hodgson. No locality.

Pyrola. There are no North Lancashire records.

Moneses grandiflora Salisb. C.F.R., 1793.

1846. Phytologist, 428, as *P. uniflora* L. Bardsea, near Ulverston, by Chas. Wright, W. Borrer. **1885.** Baker's Flora, 146. 'Reported by the late Mr. Wright, of Keswick, from a wood near Bardsea. No doubt a misnomer.' Wright was a guide, and this is not the only plant reported by him which has not been confirmed.*

Statice Limonium L. C.F.R., 1597.

Limonium, 1680, see 1889.

1796. Withering, ed. 3, 321, 'both vars.—the 2 vars of Ray' on Lancashire coast at Low Furness, Gough; and repeated in all subsequent editions. **1805.** West. Antiq., ed. Close. Frequent on sea coasts of Furness, Atkinson; and repeated in **1842.** Evans, Furness and Furness Abbey, 26. **1843.** Jopling, Furness and Cartmel, 267. Shore at Bardsea, Aiton. Copsehead, Cartmel, Wilson. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1872.** J. of B., 61. A *Statice*, probably this, east side of Walney Island, June 1871, Chas. Bailey and J. Barrow. **1874.** J. of B., Miss E. Hodgson. Once frequent about the shore, Salthouse, near Barrow. **1885.** Baker's Flora, 174. Saltmarshes, Barrow. Grange-over-Sands, not plentiful (? J. G. B.). **1889.** Westm. Note-book, 185. Lawson's Note-book, circ. **1680.** On the south-east end of Harlside, on the sand, Lawson. Harlside (or Yarlside) is near Barrow.

Statice rariflora Drej. C.F.R., 1704.

1874. J. of B., Miss E. Hodgson—as *S. bahusiensis* Fr.—on the slate rocks, Greenodd shore. **1885.** Baker's Flora, 174. Miss Hodgson repeated. Saltmarsh, Isle of Walney, F. A. Lees. **1892.** Naturalist, 82. Oyster ground near Barrow, L. Petty.

Statice auriculæfolia Vahl. C.F.R., 1597.

1874. J. of B., Miss E. Hodgson—as *S. binervosa* G. E. Sm.—Tridley Point to Greenodd, abundant. **1885.** Baker's Flora, 174. Miss Hodgson repeated. **1892.** Naturalist, 82. Sandgate Marsh, Cartmel, L. Petty.

Armeria maritima Willd. C.F.R., 1570.

Gramen maritimum minus. Circ. 1680, see 1889.

1843. Jopling, Furness and Cartmel, 267. Sand Hall Marsh, near Ulverston, Aiton. **1857.** Phytologist, 257. On the grass

* Britten and Boulger's Index, 186, speaking of Wright and his daughter, 'but the accuracy of both was doubtful.'

and sands below Humphrey Head, Dr. Windsor; and repeated Phytologist, 1860, 257; 1861, 260; 1862, 259. **1861.** Phytologist, 237. Shore between Cark and Humphrey Head, C. J. Ashfield. **1864.** Naturalist, 39. Beach below Humphrey Head, Leo H. Grindon. **1874.** J. of B., Miss E. Hodgson. Saltmarshes, frequent. **1885.** Baker's Flora, 174. 'Common all along the coast from St. Bees to Arnside.' **1889.** Westm. Note-book. Martindale's extracts from Lawson's Note-book, circ. 1680—'Close by Dunnerholme in Furness,' Lawson.

Hottonia palustris L. C.F.R., 1597.

1843. Jopling, Furness and Cartmel, 268. Mill-dam, Bardsea, Aiton. **1869.** Bolton, Geolog. Fragm., 121. Urswick Tarn. **1874.** J. of B., Miss E. Hodgson. Aiton's locality repeated. **1885.** Baker's Flora, 172. Aiton's locality repeated on Miss Hodgson's authority.

Primula vulgaris Huds. C.F.R., 1538.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Primula veris L. C.F.R., 1568.

1775. Jenkinson, Brit. Pl., 27. Plentiful in many parts of North Lancashire. **1843.** Jopling, Furness and Cartmel, 268. Common in Furness and Cartmel, Aiton and Wilson. **1874.** J. of B., Miss E. Hodgson. No locality.

Primula hybrids.

1874. J. of B., Miss E. Hodgson. Frequent in the woods on the limestone.

Primula farinosa L. C.F.R., 1597.

[**1775.** Jenkinson, Brit. Pl., 27. In soft ground in Lancashire, Westmorland, and Cumberland.] **1843.** Jopling, Furness and Cartmel, 268. In the marshes near to Kirket (or Kirkhead), Cartmel, Wilson. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1885.** Baker's Flora, 171. 'Not found on . . . . the Coniston Hills, and Miss Hodgson omits all mention of it from her catalogue of Furness Plants.'

Lysimachia vulgaris L. C.F.R., 1548.

1861. Phytologist, 258. Between Humphrey Head and Cartmel C. J. Ashfield. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1874.** J. of B., Miss E. Hodgson. Wet hedges, near Urswick Tarn. Brathay Woods, near the Lake. **1885.** Baker's Flora, 172. Miss Hodgson repeated. Windermere. Coniston Water. Drawn from Pull Wyke by Miss Wilson.

Lysimachia nummularia L. C.F.R., 1548.

1874. J. of B., Miss E. Hodgson. Bardsea Mill Pond. Pull Wyke, near Brathay Hall, Mr. Stalker. **1885.** Baker's Flora, repeated.

Lysimachia nemorum L. C.F.R., 1570.

1843. Jopling, Furness and Cartmel, 268. At Bardsea, Aiton. Waitham Wood, Cartmel, Wilson. **1864.** Linton, Lake Country, 328. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. Old Hall Wood, near Ulverston. Woods near Graithwaite.

Trientalis europæa L. C.F.R., 1620.

1843. Jopling, Furness and Cartmel, 268. Has been found on the hills in North-west Furness, Aiton. **1885.** Baker's Flora, 171. Aiton repeated. [**1867.** Eng. Bot., ed. iii., vol. 7, 142. In England confined to the northern counties, from York and North Lancashire].

Glaux maritima L. C.F.R., 1570.

1680. See 1889. **1843.** Jopling, Furness and Cartmel, 268. Muddy saltmarshes near Duddon, Aiton. Cark, Wilson. **1849.** Otley. Guide, ed. 8, 139. On the coast near Flookborough. **1857.** Phytologist, 258. Grows plentifully on the shore below Humphrey Head, Dr. Windsor; and repeated in **1861,** p. 260, and **1864.** Naturalist, 39. Leo H. Grindon. **1874.** J. of B., Miss E. Hodgson. Saltmarshes, Plumpton to the Isle of Walney. **1885.** Baker's Flora, 174. Walney; Flookborough; Ulverston; Grange. **1889.** Westm. Note-book, 185. Martindale's extracts from Lawson's Note-book, circ. 1680. 'Roosebeck,' Lawson.

Anagallis arvensis L. C.F.R., 1538.

1864. Linton, Lake Country, 328. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. Flowers purplish blue. Roosebeck, Mr. R. Ashburner, jun. Flowers reddish brown. Wall-tops at Colton. **1885.** Baker's Flora, 173. Ashburner repeated as *cærulea*. Miss Hodgson repeated. Clarke's F. record for *A. cærulea* Schreb. is 1548.

Anagallis tenella L. C.F.R., 1633.

1843. Jopling, Furness and Cartmel, 268. Grounds of Conishead Priory, Aiton. Near Wraysholme Tower, Wilson. **1857.** Phytologist, 257. On the side of the lane, Flookborough to Humphrey Head, Dr. Windsor. **1861.** Phytologist, 258. Ditches between Humphrey Head and Cartmel, C. J. Ashfield. **1864.** Linton, Lake Country, 328. 'Common,' no locality. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1874.** J. of B., Miss E. Hodgson. Little Croft Park and Ghyllbanks, near Ulverston. **1885.** Baker's Flora, 173. Ascending to 350 yards on Coniston Old Man (? J.G.B.).

Centunculus minimus L. C.F.R., 1724.

1796. Withering, ed. 3, 198-9. Saltmarshes and meadows near the sea-side, Newton-in-Cartmel, common, Isaac Hall, and repeated in all subsequent editions; and in **1805,** Turner and Dillwyn, Bot. Guide, ii., 366. **1835.** Watson, New B. G., but ascribed to 'B.G.' **1839.** Baxter, Phænog. Bot., iv., 296. **1885.** Baker's Flora, 173. Hall repeated. 'Modern confirmation wanted.'

Samolus Valerandi L. C.F.R., 1629.

Anagallis aquatica retundifol. Ger. First reported by Lawson to Ray, April 1688.

1718. Derham, Phil. Lett., 213. At Marsh Grange in Furness, Lawson. **1848.** Ray Corresp., Ray Soc., 197 et seq. Lawson to Ray in full. **1861.** Phytologist, 260. Shore below Humphrey Head, west side, Dr. Windsor. **1874.** J. of B., Miss E. Hodgson. Canal Foot to Tridley Point, and several places on Plumpton shore. **1885.** Baker's Flora, 173. Damp sandy hollows of the coast at Ronnard, F. A. Lees. Miss Hodgson repeated. 'On the shore at Flookborough, Kent's Bank, and Grange. First recorded by Lawson.'

NOTE.—Ronned, local pronunciation = Roanhead or Ronhead, on the coast between Askham and Barrow.

Fraxinus excelsior L. C.F.R., 1548.

1774. Pennant, Tour, 1772, ii., 29. 'Observe that the tops of all the ash trees were lopped; and was informed that it was done to feed the cattle in the autumn, when the grass was on the decline; the cattle peeling off it as a food. In Queen Elizabeth's time the inhabitants of Colton and Hawkshead remonstrated against the number of bloomeries then in the country, because they consumed all the loppings and croppings, the sole winter food of their cattle.* **1796.** Withering, ed. 3, 58. Pennant's statement repeated, and in all subsequent editions. **1842.** Evans, Furness and Furness Abbey, 26. No locality. **1864.** Linton, Lake Country, 326. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 147. 'The finest tree I remember stands just within the entrance gate of the grounds of Furness Abbey,' J. G. Baker.

Ligustrum vulgare L. C.F.R., 1562.

1796. Withering, ed. 3, 10. Rocks of Dunnerholme and above Cartmel Wells. Atkinson, and repeated in all subsequent editions. **1805.** West, Antiq., ed. Close, 378. Dunnerholme only. **1830.** Otley, Guide, ed. iv., 146. Humphrey Head, and repeated in all following editions. **1842.** Evans, Furness and Furness Abbey, 25. **1861.** Phytologist, 238. Between Humphrey Head and Cartmel,

* I have to thank the Rev. Canon Ayre for a sight of Pennant's volume.

C. J. Ashfield; and on p. 261, Dr. Windsor repeats Humphrey Head locality. **1864.** Linton, Lake Country, 326. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. Plumpton Rocks. Fine at Penny Bridge. **1885.** Baker's Flora, 147. 'Truly wild on the limestone cliffs, as on . . . the steep western escarpment of Humphrey Head.'

Vinca major L.

1892. Naturalist, 84. A garden escape on the Ulpha Road, 1887; almost gone now (1890), carried away, L. Petty. The locality is the site of an old garden, long since disused, and quite overgrown with grass and trees.

Vinca minor L. C.F.R., 155[1].

1874. J. of B., Miss E. Hodgson. Leybarrow Wood, but near a cottage. **1885.** Baker's Flora, 147. Frequent in parks and near gardens, as, for instance, at Coniston Waterhead and just north of Newby Bridge, J. G. B.

NOTE.—In Leybarrow Wood, it seems *now* nothing more than a garden escape, 1896.

Blackstonia perfoliata Huds. C.F.R., 157[0].

1892. Naturalist, 82. Near Cark, 1891, W. Duckworth. [**1866.** Eng. Bot., ed. iii., vol. 6, 72. 'Extends as far north as the counties of Yorkshire and Lancashire.' This, of course, refers to more southern divisions].

Erythrea Centaurium Pers. C.F.R., 153[8].

Centaurium minus CB. flore albo. First reported by Lawson to Ray, April 1688.

1690. Ray Syn., ed. i., 159. With a white flower, nigh Cartmel Medicinal Well, Lawson; and repeated **1696.** Ray, Syn., ed. ii., 224. **1718.** Derham. Phil. Lett., 215. Lawson to Ray, 1688, in full. **1724.** Ray, Syn., ed. iii., 286. **1763.** Martyn, Pl. Cantab., 60. **1848.** Ray Corresp., Ray Soc., 197 et seq. Lawson in full. **1864.** Linton, Lake Country, 326. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. Marsh lands not infrequent. **1885.** Baker's Flora, 148. 'Ascending to top of Hampsfell, over Grange, and Lawson's record included under *E. littoralis*. **1889.** Westm. Note-book, 113. Lawson repeated in Martindale's 'Early Westm. Pl. Rec.'

Erythrea littoralis Fr.

1874. J. of B., Miss E. Hodgson. Plumpton Saltmarshes; shore under Humphrey Head. **1878.** J. of B., 38. Mr. James Britten points out that the specimen in Miss Hodgson's herbarium, supposed to be this, is really *E. pulchella*. **1885.** Baker's Flora, 148-9. Miss Hodgson repeated. **1892.** Naturalist, 82. Low marsh near Raven Winder, L. Petty.

NEWTON'S DICTIONARY OF BIRDS.

A | Dictionary of Birds | By | ALFRED NEWTON | assisted by | HANS GADOW | with contributions from | RICHARD LYDEKKER . . | CHARLES S. ROY . . | and | ROBERT W. SHUFELDT . . | . . | Part iv. **(Sheathbill-Zygodactyli,** | together with Index and Introduction) | London | Adam and Charles Black | 1896 [8vo, paper boards, pp. 833-1088 + i.-xii. + 1-124].

WITH the fourth part—which was issued by Messrs. Black a day or two before Christmas—this *multorum annorum opus* of Professor Newton is completed. Notices of the previous parts have already appeared in 'The Naturalist.' In the part with which we are here concerned the principal author has a multitude of articles more or less short, but all interesting and many of great importance. Of these Sheld-Drake, Shoveler, Skua, Snake-Bird, Solitaire, Song, Swan, Tapaculo, Tinamou, Tody, Touraco, Variation ('a seductive subject,' and, it may be added, a greatly neglected but vastly important one), Warbler, Weka, Zosterops, may be specially noticed.

Dr. Gadow's contribution consists of articles on Skeleton, Skull, Sternum, Stomach, and Vascular System, together with several lesser ones. It cannot be doubted that the book is greatly enriched in the contributions of this gentleman; and no praise can be greater than that accorded them in the preface by Professor Newton. 'They cannot fail to place the enquirer, be he beginner or advanced student, in a position he could not hope to occupy through the study of any other English book, and, what is better, a position whence he may extend his researches in many directions.'

Mr. Lydekker has an article on the *Stereornithes* with illustrations after Señor F. Ameghino. The term *Stereornithes*, it may be remarked, is used to comprehend a group of extinct, flightless birds from South America. It was expected that the remains would prove of great taxonomic importance, but the most recent investigation has shown that this can no longer be entertained.

Dr. Shufeldt has a short article on the Surf-Bird, *Aphriza virgata*.

The introduction, which is based upon the article 'Ornithology' in the ninth edition of the 'Encyclopædia Britannica,' is a history of ornithologists and ornithology written with admirable conciseness and yet with a charm of style that captivates the attention, while there are some beautiful passages that cannot fail to lay hold of the memory. The latter part—wherein the chief additions are found—reviews the various attempts that have been made to establish a Natural Classification of Birds, and will be intelligible to the initiated only. The last dozen pages are extremely interesting, as they embody the author's views of the present aspect of the subject, but it would be impossible to adequately state them here either so briefly or so clearly without transcribing them. Professor Newton

has not formulated a classification of his own; indeed, as he himself has told us, to do so would be the assumption of knowledge in the possession of no living man. But he has shown us where the earlier system-makers failed, and how some later workers have copied their failures, or magnified them, so that some of the later systems are more misleading than those they are intended to supersede. We cannot resist giving one instance wherein the author differs from most recent taxonomers. Taking his stand by the side of the late Wm. Kitchen Parker, he has shown the invalidity of the notion that the most exalted position in the *Systema avium* is held by the *Turdidæ*, and he has shown moreover that this position is rightly occupied by the *Corvidæ*—of whom the Raven is the undoubted chief. To those to whom ornithology is a serious study the introduction (it occupies 120 pages of close—too close—print, and contains references to over 500 authors) is invaluable, and for its manner of treatment we have no expressions save those of admiration. In the vast literature of ornithology these pages must always hold a high place, and those who may read them will always be grateful for the pleasure, no less than the profit, afforded thereby.

In concluding this notice we should like to take the opportunity afforded us of directing attention to those names of birds which appear in an unfamiliar form. Albatros (we note with pleasure that Mr. Salvin has adopted this spelling in the 25th volume of the British Museum 'Catalogue of Birds'), Avoset, Cuckow, Daw, Pie will be sufficiently illustrative. It is not always pleasant to replace what is familiar by what is strange, but it should never be repugnant to rectify error, and we feel sure that sooner or later the propriety of the changes here made will be recognised. The author is well known to have paid considerable attention to nomenclature, and every ornithologist knows that his judgment in matters connected therewith is neither hasty nor capricious.

W. C. J. R. B.

St. Leonard's-on-Sea.

NOTES AND NEWS.

Before us lies a reprint from 'The Glacialists' Magazine' for September 1896, of a paper by Herbert Muff and Thomas Sheppard—entitled 'Notes on the Glacial Geology of Robin Hood's Bay, Yorkshire,' which we owe to the kindness of Mr. Sheppard. The paper gives a full account of observations made in July last year, with discussion of their bearings on the subject of glaciation in general.

To our old friend Mr. Robert Standen, assistant keeper at the Manchester Museum, we are indebted for a reprint of his paper on 'The Land Mollusca of Ballycastle and District, County Antrim,' which appeared in the 'Irish Naturalist' for January. Mr. Standen has already done not a little excellent work in investigating the mollusca of Ireland, and his work at Ballycastle has proved an interesting and valuable continuation thereof.

BIBLIOGRAPHY:

Papers and Records published with respect to the Natural History and Physical Features of the North of England.

FERNS, FERN-ALLIES, AND CHARACEÆ, 1888-1889.

THE present instalment has been compiled and edited by

WM. DENISON ROEBUCK, F.L.S.

Previous instalments of the Bibliography of these groups were included with that of Flowering Plants, and appeared as follows:—

For 1884, in 'Naturalist,' Sept. 1885, pp. 331-336.
„ 1885, „ June 1886, pp. 174-179.
„ 1886, „ Dec. 1890, pp. 359-374.
„ 1887, „ April-May 1891, pp. 125-133.
„ 1888, „ June 1891, pp. 189-199.

The counties and vice-counties of which cognizance is taken are the following, as named and numbered in the Watsonian scheme:—

53, Lincoln S.; 54, Lincoln N.; 56, Notts; 57, Derby; 58, Cheshire; 59, Lancashire S.; 60, Lancashire W.; 61, York S.E.; 62, York N.E.; 63, York S.W.; 64, York Mid W.; 65, York N.W.; 66, Durham; 67, Northumberland S.; 68, Cheviotland; 69, Westmorland with Furness; 70, Cumberland; and 71, Isle of Man.

ANON. [not signed]. **York Mid W.**

Excursion to Malham and Gordale Scar [June 22nd, 1884; *Polypodium phegopteris*, *P. dryopteris*, and *P. calcareum* noted]. Report of the Lower Mosley Street Schools' Natural History Society, Oct. 1884, p. 10.

ANON. [not signed]. **Westmorland.**

Lastræa Thelypteris in Westmorland [found by Mr. Wright, growing in a bog a few miles from Kendal]. Westm. Note Book and Nat. Hist. Record, vol. 1, part 2, June 1888, p. 44.

ANON. [not signed]. **Westmorland.**

Field-Meeting of the Kendal Natural History Society [at Longsleddale, Aug. 2nd; *Lycopodium alpinum* and *Selaginella selaginoides* mentioned as seen or not seen]. Westm. Note Book and Nat. Hist. Record, vol. 1, part 3, Sept. 1888, pp. 64-65.

ANON. [not signed]. **York Mid W.**

Holling Hall, Ilkley [being copy of ancient document, dated 1592, being sworn depositions of John Langfellowe. as to the manors of Ilkley and Hollinghall, in which it is mentioned that brackens (*Pteris aquilina*) were got on lands there and by the sides of Nicholl-riddinge Gill]. Yorksh. N. and Q., Part 13, Oct. 1888, pp. 25-26.

ANON. [not signed]. **Lanc. S.**

Liverpool Naturalists' Field Club [at Ashurst Beacon, Aug. 10th, 1889; *Equisetum sylvaticum* noted]. Research, Sep. 1889, p. 71.

ANON. [not signed]. **Lanc. S.**

Manchester Microscopical Society [at Hurst and Lees; *Asplenium ruta-muraria* noted]. Research, Oct. 1889, p. 94.

ANON. [not signed]. **Isle of Man.**

Excursion to Sulby Glen [Isle of Man], Aug. 28th, 1889 [noting *Polypodium phegopteris* and *Osmunda* by the streamlets running into Sulby Glen]. Proc. I. of Man N.H.S. ; Yn Lioar Manninagh, Oct. 1889, p. 96.

ANON. [not signed]. **Isle of Man.**

Manx Natural History and Antiquarian Society [at Sulby, Sep. 28th, 1889 ; *Lastræa oreopteris*, *Osmunda*, and *Polypodium phegopteris* found]. Research, Nov. 1889, p. 115.

H. COOPER ABBS. **York N.W.**

[Presidential] Address to . . the Tyneside Naturalists' Field Club . . May 24th, 1886 [*Polypodium vulgare*, *Aspidium aculeatum*, *A. angulare*, *A. filix-mas*, *Lastræa dilatata*, *Athyrium filix-fœmina*, *Asplenium trichomanes*, *A. viride*, and *Cystopteris* noted by Faraday Spence as growing within the 'Buttertubs,' 25th June, 1885 ; *Cystopteris fragilis* and *Asplenium ruta-muraria* noted by R. Howse between Askrigg and Hawes ; disappearance of Scaly Spleenwort and of *Asplenium viride* from that district recorded ; *Ceterach officinarum* noted in or near Semerdale, 26th June, 1885]. Nat. Hist. Trans. Northumb. Durh. and Newc., vol. 8, pt. 3, 1889, pp. 326-346.

J. G. BAKER. **Cumberland, Westmorland, Furness.**

A Flora of the English | Lake District | By | J. G. Baker, F.R.S., F.L.S. | [woodcut] | London | George Bell & Sons, York Street | Covent Garden | 1885 [8vo cloth, pp. viii. + 262 ; the usual introductory and bibliographical matter—and an enumeration, with localities, of 40 ferns, seven lycopods, *Pilularia*, and nine horsetails].

W. B. B[ARBER]. **Lake District.**

Ackworth Natural History Society [noting Stag's-horn Moss [*Lycopodium* sp.] from Lake District]. N.H.J., Oct. 15th, 1889, p. 124.

W. H. BEEBY [distributor]. **Cumberland.**

The Botanical Exchange Club of the British Isles—Report for 1882 [8vo, 1884, p. 81 ; notes anent *Chara polyacantha* from Cumberland].

ARTHUR BENNETT [distributor]. **Lanc. S., Cheshire.**

The Botanical Exchange Club of the British Isles.—Report for 1884 [8vo, publ. 1885 ; notes on *Nephrodium spinulosum* in Delamere Forest, and *Chara braunii* Gmel. at Reddish].

ARTHUR BENNETT. **Westmorland and Furness.**

Records of Plants, additional to those in the 2nd Ed. of Topographical Botany for the county of Westmorland [giving stations for *Asplenium septentrionale*, *Pilularia globulifera*, and *Equisetum variegatum* ; also enumerating six species of Characeæ not yet recorded for but likely to occur in Westmorland]. Westm. Note-Book and Nat. Hist. Record, part 6, June 1889, pp. 133-4.

ROBERT BROWN [signature to introduction]. **Cheshire, Lanc. S.**

Flora | of | Liverpool. | Third Appendix. | — | **Liverpool Naturalists'** Field Club. | 1887. | — | Price Sixpence. | — | Liverpool : | G. Eltams (late Fearnall & Co.), 20, Old Post Office Place. [8vo, printed cover, 30 pages : Cheshire stations given for *Aspidium angulare*, *Nephrodium spinulosum*, *Osmunda*, *Botrychium*, *Equisetum sylvaticum*, and *Chara syncarpa* ; Lancashire ones for *C. translucens* and *Ophioglossum vulgatum* ; and in both counties for *Equisetum maximum*].

ROBERT BROWN. **York Mid W., Lanc. S.**

Botanical Résumé [of notes made at the 1888 Excursions of the Liverpool Nat. F. Club, anent *Asplenium viride* at Ingleton, 13th June, *Nephrodium dilatatum* at Scarth Hill, Ormskirk, 8th Sep.]. Proc. Liverp. Nat. F. Club for 1888 (publ. 1889), pp. 40 and 43.

ROBERT BROWN. **Cheshire, Lanc. S., York Mid W.**

Names of some of the Most Interesting Plants noticed [by Liverpool N. F. C.] during the Excursions in 1888 [enumerating *Equisetum maximum* as found at Meols and West Kirby, Cheshire, 5th May, 1888, nine species of Ferns at Ingleton, 13th June, *Equisetum maximum* at Speke and Hale, Lanc. S., 30th June]. Proc. Liverp. N. F. Club for 1888 (pub. 1889), pp. 45-47.

ROBERT BROWN. **Lanc. S.**

Additional Localities to the Flora of Liverpool, found within the fifteen miles' radius, and recorded in 1888 [giving stations for *Tolypella glomerata* in Lancashire]. Proc. Liverp. Nat. F. Club for 1888 (pub. 1889), pp. 49-52.

JAMES CROSTON. **Derbyshire.**

On Foot through the Peak; or, a Summer Saunter through the Hills and Dales of Derbyshire. Ninth edition, crown 8vo., pp. xiv + 350. Lond. and Manch. : John Heywood, 1889. Price 3s. 6d. [Contains a catalogue of Ferns and Mosses found in the neighbourhood of Castleton]. **[Not seen.]**

GEORGE CLARIDGE DRUCE. **Cumberland.**

The Botanical Exchange Club of the British Isles.—Report for 1888 [8vo, publ. 1889 ; at p. 241, *Lastræa dilatata* at High Raise, 2,500 feet].

T. W. EDMONDSON. **York Mid W.**

[Polypodium phegopteris noted for Winterburn, in a note on] Spiræa *filipendula* in Upper Airedale. Nat., Nov. 1889, p. 322.

JAMES FLEMING. **Cheshire.**

Rambles during the Year 1887.—Bramhall [July 2nd ; Nitella noted in pond at Mile End]. Ann. Rep. Manch. Microsc. Soc. for 1887, pub. 1888, p. 65.

WILLIAM FOWLER. **Linc. N. and S.**

Lincolnshire Sand and Clay Plants [enumerated according to their lithological preferences ; *Ophioglossum vulgatum*, *Equisetum maximum*, *Pteris*, *Blechnum*, *Athyrium filix-fœmina*, *Lastrea oreopteris*, *L. filix-mas*, *L. dilatata*, *Botrychium*, *Lycopodium clavatum*, *L. inundatum*, and *Selaginella selaginoides* noted with localities and soil-preferences]. Nat., Dec. 1889, pp. 353-355.

HILDERIC FRIEND. **Notts, York S.W.**

The Flora of the District [of Sherwood Forest and the Dukeries ; noticing *Pteris*, *Scolopendrium*, *Polypodium vulgare*, *Ophioglossum vulgatum*, *Cystopteris fragilis* (Anston Crags), *Blechnum*, *Asplenium*, *Lastræa filix-mas*, *Botrychium*, and 'Club-moss']. Sissons's 'Beauties of Sherwood Forest' : a Guide to the 'Dukeries' and Worksop, 2nd Ed., 1888, p. 134.

JAMES GROVES. **Cheviotland.**

The Botanical Exchange Club of the British Isles.—Report for 1885 [8vo., publ. **1886,** note on *Equisetum palustre* from Bamborough, at p. 140].

JOHN HANDLEY. **York N.W.**

Sedbergh : | A Few Notes on its Flora, | By | John Handley. | — | Sedbergh : | Jackson & Son, Printers and Bookbinders. | — | 1885. [Small 8vo, 8 pages : notes on occurrence of *Lycopodium clavatum*, *L. alpinum*, and *L. selago* on Holme Fell].

W. B. HEMSLEY. **Isle of Man.**

Holiday Jottings in the Isle of Man [noting abundance of *Osmunda regalis*]. Gard. Chron., Oct. 22nd, **1887,** p. 492.

J. F. HILLS, Sec. **York Mid W.**

York, Bootham. Natural History Society [Ophioglossum noted at Knaresborough]. N.H.S., June 15th, 1889, p. 86.

[W.] HODGSON [not signed]. **Cumberland.**

Ferns in the Lake Country [noting extermination of Osmunda near Keswick]. Gard. Chron., Feb. 16th, **1884,** p. 218.

E. HOWARTH [teste preface]. **Derbyshire, York Mid W., S.W.**

List of Plants, | collected chiefly in the | Neighbourhood of Sheffield | by | Jonathan Salt, | and now in the | Sheffield Public Museum. | = | 1889.

| Published by the Sheffield Literary and Philosophical Society. [8vo, vi. + 57 pages and printed cover; localities given in North of England for 23 ferns, three lycopods, and five equisetids].

York N.E., Mid W., S.E.

HENRY IBBOTSON.

The Ferns of York, | including also | Nidderdale, | and the districts around | Thirsk, Scarbro', and Whitby. | — | By | Henry Ibbotson. | — | Edited by | B. B. LeTall, M.A., and Alfred R. Waller. | — | York: | William Sessions, 15 & 16, Low Ousegate. | 1884. [8vo., paper cover, 24 pages; 36 ferns, *Pilularia*, and six Equisetids enumerated, with numerous varieties and stations, and at end a table of localities].

Isle of Man.

J. M. JEFFCOTT.

Address of the Retiring President [gives a Manx name for Osmunda]. Yn Lioar Manninagh, Ap. 1889, pp. 56-58.

Isle of Man.

P. M. C. K[ERMODE].

Phenological Observations [made in the Isle of Man; giving date for *Cryptogramme crispa*]. Yn Lioar Manninagh, July 1889, pp. 84-86.

Isle of Man.

P. M. C. KERMODE.

Address by the Retiring President . . delivered . . March 11, 1886 [gives titles of books and papers dealing with the ferns of the Isle of Man]. Back Transactions of the Isle of Man N.H.S., i. 70; publ. with Yn Lioar Manninagh, Oct. 1889.

York S.W.

P. FOX LEE.

[Ferns observed by] the Yorkshire Naturalists' Union at Holmfirth [10th June, 1889; *Cystopteris fragilis*, *Nephrodium filix-mas* var. *borreri*, *N. oreopteris*, *Polypodium phegopteris*, *P. dryopteris*]. Nat., July 1889, pp. 203-4

York Mid W.

P. FOX LEE.

[Plants noted by] the Yorkshire Naturalists' Union at Harrogate [13th July, 1889; *Equisetum palustre* at Birk Crag, *E. maximum* in Crimple Valley; and *Asplenium ruta-muraria* and *A. trichomanes* at Knaresborough]. Nat., Aug. 1889, pp. 237-9.

York N.W., Mid W. and S.W.

FREDERIC ARNOLD LEES.

The Flora | of | West Yorkshire | with a | sketch of the climatology and lithology in | connection therewith | By | [4 lines of author] | — | [2 line quotation] | — | London: | Lovell Reeve & Co., . . | — | 1889. [8vo. Ferns and Fern-allies occupy pp. 499-528 and 799-800; 34 species of Ferns, 5 Lycopods, *Isoëtes*, *Pilularia*, 7 Equisetids, and 12 of Characeæ included; references also in the introductory chapters].

York. S.E.

B. B. LETALL.

York, Botham. Natural History Club [Pillwort (Pilularia globulifera found for the first time on Tillmire, though long reported there]. N.H.[illegible] Dec. 15th, 1889, p. 168.

Durham.

R. T. MANSON.

Zig-Zag Ramblings by a Naturalist [round Darlington; the list of 'The Flora of Darlington' includes 10 ferns and 5 equisetids, with localities]. Small 8vo., Darlington, 1884, pp. 115-130.

Westmorland.

[J. A.] MARTINDALE.

[Ferns observed at a] Field Meeting of the Kendal Natural History Society [at Lyth Fell, 1st Aug. 1889; *Lastrea spinulosa* var. *glandulosa*, *L. rigida* and *Phegopteris robertiana*]. Westm. Note Book and Nat. Hist. Record, part 8, Dec. 1889, p. 175.

Westmorland and Furness.

J. A. MARTINDALE [not signed].

Early Westmorland Plant Records [for Cryptogramme crispa and *Hymenophyllum unilaterale*, given in detail]. Westm. Note Book and Nat. Hist. Record, Sep. 1880, pp. 153-160. [*Asplenium adiantum-nigrum*, *A. trichomanes*, *Ceterach officinarum*, *Scolopendrium*, *Cystopteris fragilis*, *Lastrea thelypteris*, *Phegopteris dryopteris*, *Ph. polypodioides*, *Osmunda*, *Ophioglossum*, *Botrychium*, *Equisetum arvense*, *E. limosum*, *E. hyemale*, *Lycopodium selago*, *L. inundatum*, *L. alpinum*, *Selaginella selaginoides*, &c.

Chara? treated of; followed by an account of a note book of Thomas Lawson's, including notes of *Lycopodium clavatum*]. Westm. Note Book and Nat. Hist. Record, part 8, Dec. 1889, pp. 179-186.

S. L. MOSLEY. **York S.W.**

Observations at Anston Stones, May 1889 [anent Scolopendrium, *Asplenium trichomanes* and *A. ruta-muraria*]. Nat., Aug. 1889. p. 226.

R. P. M[URRAY]. **Isle of Man.**

Queries [respecting] "Asplenium Germanicum" [reported as taken at Dalby, but which writer suspects to be erroneous]. Yn Lioar Manninagh, Ap. 1889, p. 67. [This query is replied to in same number by W.S., who states that it was inadvertently included, also that the species is given as Manx in one of the guide-books].

GEORGE NICHOLSON [distributor]. **Linc. S., Lanc. S.**

The Botanical Exchange Club of the British Isles.—Report for 1883 [8vo., **1885**; notes on *Chara* at Deeping Fen, Reddish, and Southport, p. 99].

GEORGE NICHOLSON. **Derbyshire.**

The Botanical Exchange Club of the British Isles.—Report for 1887 [8vo, publ. 1888, p. 195; *Equisetum capillare* and *E. sylvaticum* at Shirley].

W. H. PAINTER. **Derbyshire.**

A Contribution to | the Flora of Derbyshire. | Being an Account of the | Flowering Plants, Ferns, and Characeæ | found in the County. | By | [3 lines of author] | London: | . . | . . | Derby: | . . 1889. [8vo., vi + 156 pages and folding map; preliminary, statistical, geological, physiographical, and bibliographical notes; 26 ferns, 2 lycopods, 6 equiseta, and 4 characeæ are included; 8vo., cloth, pp. 156, and map; London: Bell and Son, price 7s. 6d.].

W. H. PAINTER. **Derbyshire.**

Additional Notes on the Flora of Derbyshire [mentioning Osmunda *regalis*, *Equisetum maximum*, *Lycopodium selago*, and *L. clavatum* as new county records]. J. of Bot., June 1889, pp. 178-9.

E. P. QUINN. **Cheshire.**

Rambles during the year 1887.—Ashley [June 11th; Nitella noted in the ponds]. Ann. Rep. Manch. Microsc. Society for 1887, pub. 1888, pp. 63-64.

J. F. ROBINSON. **Cheshire.**

On the Botany of the Cheshire Meres [a brief note, mentioning *Aspidium aculeatum*, *Ophioglossum vulgatum*, *Asplenium marinum*, *Lycopodium inundatum*, and *Pilularia*, with their habitats, as characteristic forms met with]. Proc. Bot. Soc. Edinb., vol. 14, part 3 (**1883**), pp. cvi. cvii.

M. H. ROBSON. **Northumberland S.**

Additions to the Local Fauna and Flora, with Remarks on some New Habitats, etc. [*Nitella*, probably *flexilis*, observed 1874 in a ditch skirting the Newcastle Town Moor, and Crag Lough; details given; also *Cystopteris fragilis* and *C. dentata* found near Crag Lough]. Nat. Hist. Trans. Northumb. Durh. and Newc., vol. 8, part 1, publ. **1884**, pp. 185-9: p. 189 reprinted in part 2, pub. **1885**.

M. B. SLATER. **York N.E.**

Botanical [Report for 1885; full details of work done in the season; *Polypodium phegopteris*, *P. dryopteris*, *Asplenium ruta-muraria*, and *A. adiantum-nigrum* in Eskdale and near Whitby]. Third Ann. Rep. Malton Nat. Soc., **1885-6**, publ. **1886**, pp. 8-9.

M. B. SLATER. **York N.E.**

Botany [being a report on investigations by Malton members in 1886; including *Polypodium phegopteris* at Saltersgate Beck, *P. vulgare*. *P. phegopteris*, *P. dryopteris*, *Lastrea oreopteris*, *L. filix-mas*, *L. dilatata*, *Asplenium trichomanes*, and *Athyrium filix-famina* at Rosedale, Sep. 27th, 1886]. Fourth Ann. Rep. Malton F. Nat. & Sci. Soc., **1886-7**, publ. **1887**, pp. 17-19.

M. B. SLATER. **York N.E.**

[Ferns observed by] the Yorkshire Naturalists' Union at Robin Hood's Bay [21st June, 1889; *Polystichum angulare* and *Polypodium vulgare*, about Fylinghall and Howdale Beck]. Nat., Aug., 1889, pp. 230-1.

WALTER W. STRICKLAND. **York S.E.**

Notes on Fungi: with List of Species collected chiefly in East Yorkshire [with mention of their occurrence on *Lastrea dilatata* at Pond Wood, Boynton]. **Nat., July 1889, p. 193.**

G. SWAINSON. **Isle of Man.**

Results of Dredging Excursion to Dalby, Aug. 1888 [with notes of *Asplenium marinum*, *A. germanicum*, *Osmunda*, and *Adiantum* being observed]. Vannin Lioar, Jan. 1889, p. 15.

M. TAIT. **York Mid W. and S.E.**

Yorkshire: | its Scenes, Lore and Legends. | [four lines prize essay] | By | M. Tait | [seven lines supplementary to title] | = | Leeds: | E. J. Arnold, Printer and Publisher, 3, Briggate. | — | 1888 [Small 12mo, 100 pages, and maps; references at p. 4 to *Scolopendrium* on Craven limestone plateaux, and at p. 6 to Wolds thickly overgrown with *Pteris aquilina*].

T. TALBOT. **Yorkshire, Westmorland, Isle of Man.**

[Ray's Record of Osmunda for Yorkshire, Westmorland, and Isle of Man, incidentally quoted in a note on] *Brassica monensis*. Back Trans. Isle of Man N.H.S., i. 13-18; published with Vannin Lioar, No. 1, Jan. 1889.

W. THOMPSON. **York N.W.**

Florula Sedbergensis. | ~~~ | A Catalogue | of | Flowering Plants | | and | Ferns | growing in the neighbourhood of | Sedbergh. [8vo, 20 pages and printed cover; dated May 1886 at end of Preface; a bare enumeration of scientific and English names; 23 Ferns, 3 Lycopods, and 4 Equisetids].

C. F. THORNEWILL. **Derbyshire.**

Calendar of Nature, 1886 [for Burton-on-Trent; dates given for *Ophioglossum*]. Eleventh Ann. Rep. Burton-on-Trent N.H. and Arch. Soc., for **1886**, pub. **1887**, pp. 22-26.

A. J. WALKER. **Durham and York N.W.**

Teesdale Rarities [found by Writer and Mr. Weldon, Aug. 1889; *Equisetum pratense* and *E. variegatum*]. N.H.J., Nov. 15th, 1889, p. 155.

JAMES G. WELLS [Hon. Sec.]. **Derbyshire.**

Report of the Botanical and Microscopical Section [of the Burton-on-Trent N.H.S.], 1887-8 [noting *Equisetum limosum* and *E. sylvaticum* at Bretby, and *Asplenium ceterach* at Dovedale]. Ann. Rep. Burton-on-Trent N.H. and Arch. Soc., 1887-8, publ. 1888, pp. 17-18.

J. A. WHELDON. **York N.E. and Mid W.**

Strensall Common [much changed within past two years; actual or impending disappearance of *Pilularia globulifera* noted; Askham Bog also in danger of partial destruction, but not as far as the haunts of *Osmunda* and *Lastrea thelypteris*]. Sci. Goss., Jan. 1889, p. 23.

E. M. WOOD. **Cheshire.**

[Fern noted at a] Field Meeting at Burton and Willaston.—June 18th, 1887 [*Nephrodium dilatatum* at Haddon Wood]. Liverp. Sci. Stud. Ass., Ann. Rep., **1887-8**, p. 12.

EMILY M. WOOD. **York Mid W.**

[Eleven Ferns and three Lycopods noted by] Liverpool Field Naturalists at Ing'eton [June 5th, 1889]. Research, July 1889, pp. 19-20.

TREVOR BASIL WOODD. **York Mid W.**

[List of] Plants of Langstrothdale, Mid-West Yorkshire [with stations for some; 19 ferns, no fern-allies, listed]. Nat., Sep. 1889, pp. 271-277.

T. W. WOODHEAD. **York N.W.**

[Ferns, etc., noted by] the Yorkshire Naturalists' Union in Upper Teesdale [in Aug. 1889; *Cryptogramme crispa*, *Asplenium ruta muraria*, *A. trichomanes*, *A. viride*, *Cystopteris fragilis*, *Polypodium phegopteris*, *P. dryopteris*, *Lycopodium selago*, *Lyc. clavatum*, *Lyc. alpinum*, *Selaginella selaginoides*, *Equisetum pratense*, *E. variegatum*]. Nat., Sep. 1889, p. 284.

PROTECTION OF BIRDS.

Wild Bird Protection | and | Nesting Boxes, | with illustrations of various designs of boxes, | brackets, etc., that have actually been | used by wild birds for Nidification, | and a full List of the Orders made under the "Wild | Birds Protection Acts" on the application | of County Councils, with the names | of the species protected, | By | **John R. B. Masefield,** M.A., | Vice-President of the North Staffordshire | Naturalists' Field Club. | — | Leeds: Taylor Brothers, Publishers. | 1897 [8vo, cloth, with wood engravings in the text and 9 collotype plates. Price 5/.].

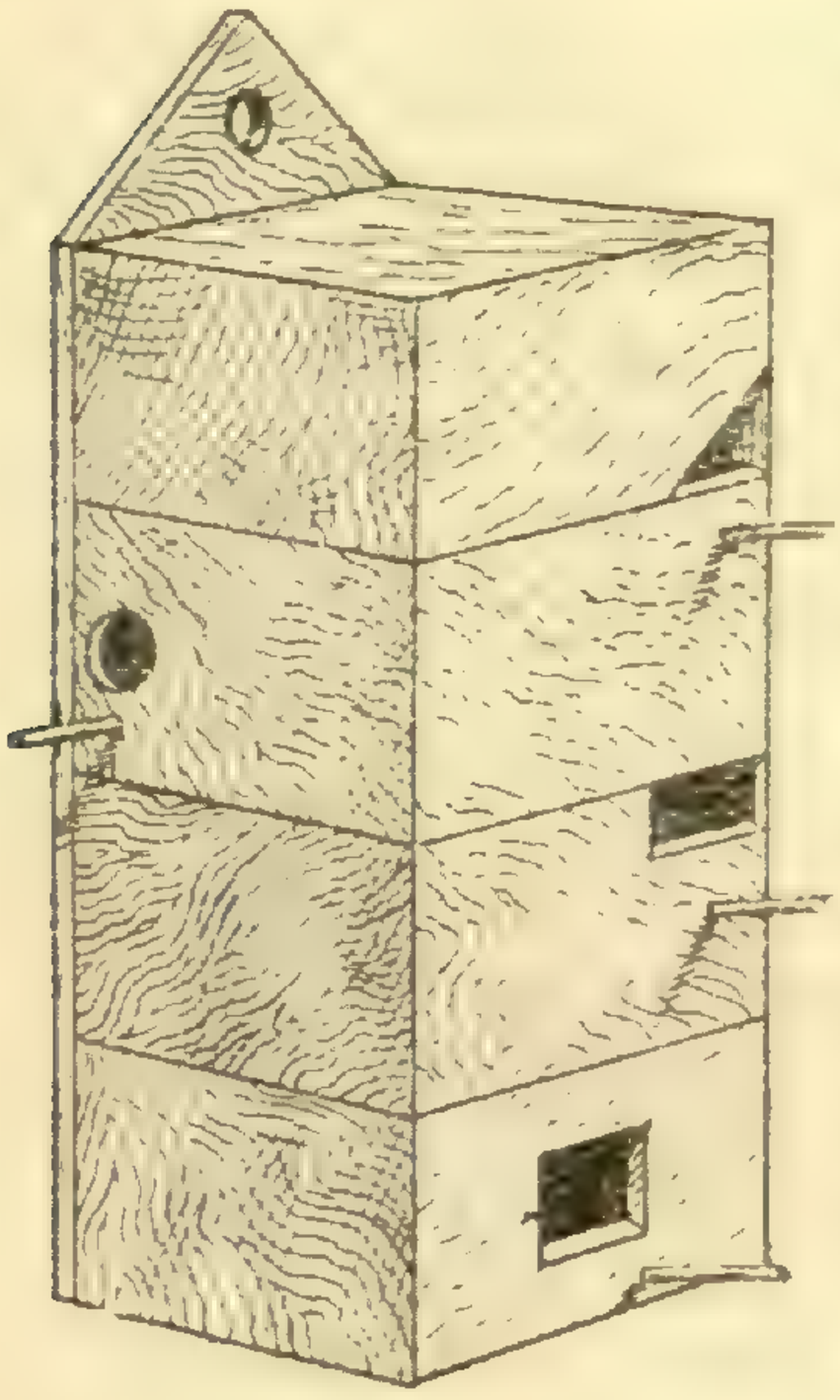
We English are now fully alive to the necessity and great desirability of protecting and encouraging our native birds, none more so than the naturalists whose out-door recreation is the observance of the habits, manners and customs of our feathered friends. This makes the appearance of the book now under notice very opportune. The title-page is so full that it leaves little need to explain further the scope of the work, so that we may at once proceed to discuss the four parts or chapters which compose it.

The first part deals with 'Wild Bird Protection,' reviewing in genial language the history of legislation in relation to birds from the time of the Carta Forestæ of 1225 to that of the very comprehensive Wild Birds Protection Act of 1894. The sketch is necessarily but a slight one of a subject so full of interest that a detailed and exhaustive account of avian legislation from the pen of one who, like our author, possesses the necessary combination of qualifications for such a task, would make a most useful book.

The second part, devoted to 'Mediæval Bird Laws,' discusses the Elizabethan Acts authorising the destruction of vermin.

The third part is the principal one, and describes and illustrates by woodcuts various forms of boxes and other contrivances calculated to give facilities for nidification and so encourage the increase of our bird population. So much can be done by those who have the opportunity, that all such suggestions as those given by our author will be joyfully acted on by many who would wish in their small way to emulate the example of Squire Waterton, in whose hospitable domain so many of the birds of the air found an inviolate sanctuary. The law facilitates this now-a-days, insomuch as it is now practically impossible to shoot our native birds, and it only remains for us to follow the example of Waterton and our author, and select from the various designs of nesting-boxes which Mr. Masefield describes and illustrates. We are indebted to the courtesy of the publishers for the opportunity of reproducing one of the illustrations, representing a composite or family nesting-box, which Mr. Masefield finds to be readily occupied by various small birds. Of course it is not by any means a new thing to provide these facilities, for a North

of England naturalist, Mr. Thomas Altham, of Bashall Eaves, Bowland, has systematically for some years done this in the woods in his neighbourhood, both by fitting up boxes and by adapting suitable trees to the purpose. We have also seen adopted a very useful measure which those putting up farm buildings can adopt with ease and with little trouble or expense, but which Mr. Masefield does not allude to. At Wilstrop, near York, the late Mr. John Harrison, when erecting farm buildings, adapted them to the use of Starlings by the omission of bricks here and there; and the writer remembers to have seen the same thing done elsewhere, notably near Crackpot Gill, Swaledale.



The fourth and final part gives in alphabetical order the text of the various Orders made in English and Welsh counties for the extension and variation of the Wild Birds Protection Acts, and stating the species dealt with in each administrative area. This is also a valuable and useful part of the book, and we hope that in any future edition Mr. Masefield will tabulate and classify this information, and add a list showing the scientific as well as the vernacular names of the various birds scheduled for protection. If this was done the value of the book would be incalculably increased at the cost of a little time and trouble. The interest of the work is enhanced by the insertion of nine collotype plates showing the places of nidification of the Bullfinch, Nuthatch, Wren, Spotted Flycatcher, Redstart, Great and Blue Tits, and Starling. Altogether the little work is full of suggestive interest, and we wish it every success. It is nicely got up, well printed, and encased in grey cloth, embellished with blue and gold.

NOTE—MOSSES.

Phascum Flœrkii : an Addition to the Moss Flora of the East Riding.—Last November, during a walk in this neighbourhood, I gathered some patches of earth on which were growing several minute mosses. I was unable to examine them at the time, but on doing so later I found I had unconsciously brought home an hitherto unrecorded moss for this Riding, Flœrke's Dwarf Earth-Moss (*Phascum Flœrkii*). It is exceedingly small, and I am not surprised that it has hitherto escaped detection or that its discovery was made by accident. The field in which it was growing was shortly afterwards ploughed up, preventing my obtaining further specimens. It was found near Kiplingcotes station, a district which has yielded me several rare and uncommon mosses. The name by which it is at present known is *Microbryum Flœrkeanum*.—J. J. MARSHALL, Pharmaceutical Chemist, Market Weighton, 23rd March, 1897.

LINCOLNSHIRE BOULDERS.

JOHN H. COOKE, F.G.S.,
Thorndale, Lincoln.

FIRST PAPER.

SINCE County Councils have become a power in the land, a marked improvement in the state of the roads of the kingdom has been noticeable. But to make good roads suitable material is required, hence it is that we find that, in counties such as Lincolnshire where road material had to be carted from a distance and is therefore expensive, no opportunity is lost to utilise such treasure-trove as the Glacial Beds of the county may supply. In the course of my daily peregrinations through and around Lincolnshire, I frequently hear of large erratics that, having lain in neighbourhoods for untold centuries, have quite recently been sacrificed to the exigencies of our 19th century civilisation.

As the opportunities that I have for seeing and for personally collecting specimens are exceptional, I am now keeping records of all boulders that I come across.

I retain specimens of all of the rocks catalogued, and I need hardly say that my collection will be at the service of any who may be interested in this subject.

ABBREVIATIONS.—A. = angular; S.A. = sub-angular: R. = rounded.

Goxhill.

1. Dolerite (S.A.), 24 in. × 21 in. × 20 in. At the corner of the High Street.
2. Shap granite (S.A.), 9 in. × 9 in. × 8 in. In the side-walk on left-hand side leading to the church.

The side-walks of Goxhill contain great numbers of boulders of Dolerite, Basalt, Granite, and Quartzite.

Ranby.

3. Secondary sandstone, 48 in. × 36 in. × 30 in., in the pond between Ranby and Bennisworth.

Habrough.

4. A heap of boulders that had been collected from the adjoining fields for the purpose of making road metal contained many specimens of basalt, granite, flint, and one boulder of andesite.

Yarborough.

5. Augite granite (R.), 45 in. × 36 in. × 33 in. This is *the* boulder of the village.

April 1897.

Alvingham.

6. Porphyritic granite (R.), 18 in. × 15 in. × 12 in., at gateway of Rainforth's farm.
7. Shap granite (R.), 14 in. × 7 in. × 7 in., in the ditch of the second field from No. 6.

North Elkington.

8. Basalt (R.), 18 in. × 18 in. × 15 in., Birkenshaw's Farm.
9. Basalt, 21 in. × 18 in. × 16 in., Birkenshaw's Farm.

Louth.

10. Dolerite (S.A.), 24 in. × 20 in. × 18 in., Greyhound yard.

Kelsterne.

11. Basalt (S.A.), 33 in. × 22 in. × 18 in., Gateway of Kelstern Hall.
12. Basalt (S.A.). 22 in. × 18 in. × 18 in., in the adjoining farm yard.

Langton.

13. Granite (S.A.), 24 in. × 18 in. × 12 in., Rising Sun public-house.

Baumber.

14. Quartzite (S.A.), 54 in. × 24 in. × 18 in., at cross roads.
15. Dolerite (S.A.), 15 in. × 18 in. × 14 in., Lion Inn.

Donington-on-Bain.

16. Basalt (S.A.), 13 in. × 12 in. × 12 in., Railway Inn.
17. Grey granite (R.), 30 in. × 18 in. × 12 in., Gray's yard.
18. Basalt (S.A.), 9 in. × 9 in. × 9 in., Gray's yard.
19. Basalt (S.A.), 18 in. × 12 in. × 12 in., Neve's shop corner.
20. Basalt (S.A.), 15 in. × 9 in. × 9 in.

The yards at Gray's and Neve's contain many small granitic and basaltic boulders. Into the wall that surrounds the churchyard there have been built many large rounded boulders of sandstone and of quartzite.

Tetney.

21. Basalt (S.A.), 33 in. × 20 in. × 12 in., at Travis's corner.
22. " " 36 in. × 26 in. × 17 in., on G. W. Simon's Farm.
23. " " 12 in. × 12 in. × 15 in., " " "
24. " " 16 in. × 12 in. × 12 in., " " "
25. " " 24 in. × 18 in. × 15 in., " " "
26. " " 24 in. × 22 in. × 11 in., " " "
27. " " 24 in. × 21 in. × 12 in., " " "
28. " " 27 in. × 24 in. × 15 in., " " "
29. " " 33 in. × 24 in. × 12 in., at Archer's corner.
30. " " 24 in. × 24 in. × 12 n., " "

31. Sandstone (R.), 24 in. × 24 in. × 12 in., at Stark's gateway.
32. Basalt (S.A.), 12 in. × 12 in. × 12 in., in Stark's yard.
33. „ „ 30 in. × 20 in. × 18 in., in Willow's yard.
34. „ „ 18 in. × 18 in. × 18 in., in E. Pender's yard.
35. Sandstone (R.), 18 in. × 15 in. × 15 in., near Plumtree's gate.
36. Dolerite (R.), 18 in. × 15 in. × 12 in., in Plumtree's yard.
37. Basalt (S.A.), 20 in. × 15 in. × 10 in., Plough Inn yard.
38. „ „ 12 in. × 10 in. × 10 in., „ „
39. Dolerite (S.A.), 16 in. × 13 in. × 12 in., near J. Pindar's gate.
40. „ „ 18 in. × 18 in. × 12 in., in S. Broadley's yard.
41. Augite granite (S.A.), 12 in. × 12 in. × 7 in., „ „ „
42. Limestone (S.A.), 20 in. × 20 in. × 10 in., „ „ „
43. Granite (S.A.), 12 in. × 12 in. × 7 in., „ „ „
44. Basalt (S.A.), 18 in. × 20 in. × 7 in., „ „ „
45. Flint (A.), 10 in. × 10 in. × 4 in., „ „ „
46. Basalt (S.A.), 10 in. × 10 in. × 6 in., „ „ „
47. Sandstone (A.), 12 in. × 12 in. × 9 in., „ „ „
48. Limestone (Mountain?) (R.), 24 in. × 24 in. × 12 in., in S. Broadley's yard.
49. Basalt (A.), 18 in. × 15 in. × 9 in., in Pender's drain.
50. Andesite (S.A.), 24 in. × 24 in. × 12 in., „ „
51. Basalt (S.A.), 12 in. × 12 in. × 12 in., „ „
52. Dolerite (S.A.), 24 in. × 18 in. × 18 in., „ „
53. Flint (A.), 15 in. × 15 in. × 8 in., „ „
54. Basalt (S.A.), 24 in. × 18 in. × 14 in, in Archer's yard.
55. „ „ 12 in. × 12 in. × 12 in., „ „
56. Dolerite (S.A.), 12 in. × 9 in. × 9 in., Lingard's garden, Hoop End.
57. Dolerite (S.A.), 14 in. × 12 in. × 12 in., in Lingard's yard.
58. „ „ 14 in. × 12 in. × 10 in., „ „
59. Quartzite (R.), 24 in. × 18 in. × 18 in., in Miss Sutton's yard.
60. Quartz-Porphyry (R.), 12 in. × 9 in. × 9 in., in S. Stampe's yard, Hoop End.

NOTE—GEOLOGY.

Travelled Shap Granite on Walney Island.—The other day I was shown in the paving of a side street in Ulverston, a rounded, travelled piece of Shap Granite. All the stones used in front of certain business premises were brought from the beach at Walney, this granite amongst them; and no doubt there are more specimens to be found at the same place still. Large quantities of stones were removed from Walney to crush for concrete for Manchester Ship Canal, and still the beach shows no sign of diminishing; there must be a good supply under water. The idea that the piece under notice was once ship's ballast will not, I think, meet the case, for if so, it probably came from some portion of the Cumberland sea-board. Mr. R. Smith, who pointed out the specimen to me (not a believer in the glacial nightmare), considers it ice-borne. In size it is about five inches each way.—S. L. PETTY, Ulverston, March 23rd, 1897.

THE LAND-PLANARIAN, RHYNCHODEMUS TERRESTRIS (Müll.), IN LINCOLNSHIRE.

H. WALLIS KEW, F.Z.S.

It may perhaps be worth while to record the occurrence of this little planarian in Burwell and Haugham Woods, where I collected it, in March, under logs and fallen branches. I am not aware that it has been previously reported from Lincolnshire, but there is no reason to suppose that it is at all rare or local in many parts of these islands. Since its presence was first remarked upon in 1846 by the Rev. L. Jenyns (afterwards Blomefield) it has been found in several counties—careful search for it in suitable spots having, I believe, been usually successful. The extent of its range northwards, however, requires investigation. Considerable interest surrounds the little creature from the fact that it is the only indigenous representative in Britain—the only undoubtedly native species in a much wider area—of a curious and important group of animals, which, in the dense, damp forests and elsewhere in the tropics, presents conspicuous forms of large size and great beauty of coloration.

One of the large species, *Bipalium kewense* Moseley, probably from the Oriental region, is well known to occur, from time to time, under glass in gardens in England and Ireland, and in many other parts of the world; and I may mention having received, not long ago, through the kindness of Mr. G. K. Gude, two specimens of it from the nurseries of Messrs. B. S. Williams & Son, at Upper Holloway, London. The worms were obligingly examined for me, and identified as *Bipalium kewense*, by Professor Jeffrey Bell.

NOTES AND NEWS.

The town of Silloth in Cumberland has lost a noted townsman by the death of the late Dr. John Leitch, who was a native of Monimail in Fife, his father being at one time minister of that parish. He studied for Medicine in the University of Edinburgh, where he completed his curriculum when only 20 years of age. He graduated in 1871, taking first-class honours in chemistry, botany and natural history. About 24 years ago he commenced practice in the neighbourhood of Silloth, at that time a rising town. From first to last during his professional career he commanded the unbounded confidence and regard of the most intelligent people in the district, and it is known that in some departments of his work he held more than local celebrity. But it was not only as a medical practitioner that the doctor made his mark. He was a man of most liberal culture, a successful student in botany and geology, he could on occasion give learned lectures on either of these subjects, with verified local illustrations. As an educationist, Dr. Leitch served for several triennial periods as a member of the local School Board. He was fond of travel, and could travel to purpose: and was well known all over the district as a keen politician of pronounced opinions.

THE CHRONOLOGY OF FLORA.

First Records | of | British Flowering Plants. | Compiled by | William A. Clarke, F.L.S. | Reprinted, with Additions and Corrections, from the | 'Journal of Botany,' 1892-6. | together with a | Note on Nomenclature. | — | London: | West, Newman & Co., . . . | 1897. [Demy 8vo. pp. ii. + 103. **Price 3s. 6d.**].

Paradoxically the fullest thanks of botanists are due to Mr. Clarke for the thankless labours of this work—surely labours of love, for the ways to it are thorny, and the gaps and side tracks tempting to error many indeed. Every field botanist should possess it, if only as an example of method, of careful delving in the very broken ground of early British Botany. Though only a small book, thoughtfully provided with an index, its centum of pages are cram-full of suggestive facts, the bringing together of which has meant immense labour. Following the plan squared by Trimen and Dyer in 1869 as to their Middlesex area alone, for each species-name (barring dubious splits and varieties) in the 'London Catalogue' of 1886, the reference is given (date, pater, and extract) of *its earliest observance* in Britain.

A work of such a kind finds its meed of praise in the standard of accuracy itself raises: no such dealing with a multitude of (often obscure) details can be quite flawless, and yet this comes very near to that most-to-be-wished-for consummation.

Nothing but a comparative analysis of the result in one or two chosen directions, leaving all the rest untouched upon, can make a review of such a work 'improving.' The writer, therefore, will take Yorkshire and Lincolnshire—as best known to him bibliographically—and try to give some idea of the fascinating mine of treasure to which, like the cave of Aladdin, study of its portals is the 'Open Sesame.'

It will gratify those more specially interested in the county of broad acres to learn that out of the 1,440 species whose *first notice* as British has been traced back, Yorkshire has the honour of furnishing 70 'Earliest Records'—a much larger number than for any other area of like size, if we except that of the 'home counties,' Cambridge, Essex, Herts, Surrey, and Kent, which lay nigher at hand to the herbalists and botanists of the 17th and 18th centuries. Of these seventy, it is remarkable that only two (*Senecio palustris*, How. 1650—and *Eriophorum gracile*, Woods. 1835) are extinct! One other in its 'first-record station' (*Pyrola secunda*, Ray, Cat., 1670, *not* 1690 as our author has it) at Hazlewood, near Aberford, is an ambiguity; for another species of the genus has grown there from time immemorial, and grows there still. There is no record for the true thing save as a name until 1724, I think; and the stations for it are in a quite different part of the county.

April 1897.

Some corrections of Yorkshire dates, beyond those noted in the Addenda (pp. 95, 96, 97), must be made.

The first record for *Rubus saxatilis* should bear date 1640, 'In Yorkshire,' Parkinson, p. 1015, anticipating the Ray Cat. notice by 30 years.

Then, Ray's record for *Potentilla verna* of 1670 is the first, because Johnson's general one of 1641 'in montosis' really had reference to the *P. alpestris* (*maculata*) of Northumberland and Teesdale—the hill districts of North England, where (as at Giggleswick with regard to Hudson's record for *verna*) the true *verna* does not grow. Johnson visited Teesdale, there first noting *Potentilla fruticosa* likewise, in 1633, and the cinquefoil that grows so finely along with the shrubby species is all *alpestris*: he did not differentiate it from *verna*, however —or rather, evidence that he did, is lacking.

Again, Merrett's earliest record (1666) of *Sedum anglicum* for Ingleborough (Pinax, p. 111) in the mud of the slate stones, is dropped for the Yarmouth record of 1670. There cannot be much doubt what Merrett meant by his 'Sedum minimum flore mixto ex albo et rubro' when *S. anglicum* is a feature still, of the high Silurian rocks, S. and E. from Lakeland to Morecambe Bay and the Lunedale Fells. Mr. Clarke, too, follows Dillenius' mislead, I hold, in referring the Merrettian record of 1666 for *Saxifraga aizoides*—'Sedum sive illecebra, fol. oblongis, floribus luteis maculosis'—to *Sedum villosum* (which has not a yellow spotted flower), the first certain record for which is Ray's of 1677. That is a small point, however, ringed within a decade of years, and between two such shining lights of early days it doesn't matter to whom the award of merit is made.

An omission among the Hawkweeds is the *Hieracium maculatum* record, of 1666 also, 'betwixt Ingleborough hill and Settle' (Pinax, 99), a puzzling form, one extreme passing well as *Gibsoni*, the other as *vulgatum* with maculate leaves, a spotting in which several other Composites of the locality partake.

Carex paradoxa was known at Askham Bogs, near York, to Baines (who wrote in 1840), and gathered by Dr. Spruce in 1842: but Dr. Moore's in *Bab. Man.* may be the first record in print. I think not, although I have not the exact reference. Specimens were exhibited either at Edinburgh or London, and a report given in some such journal as the *Athenæum*: I retail from memory what Mr. Newbould told me, and I possess all his notes and MSS. extracts —they are too voluminous to go through at present.

Before we leave Yorkshire let me say that *Geranium pyrenaicum* still persists 'ad ripam fluvii inter Bingley et Keighley in agro Eboracensi' as in the days of Hudson and Richardson. The

Trichomanes, alas! has gone from Bell Bank. Mr. Clarke's work does not embrace the ferns; and one hardly dare set down on paper what one thinks about the origin of the *present* habitat in the western half of the West Riding of the real 'Killarney' fern. It does grow therein, but——. Any day-tripper might go westward and (with a light portable ladder) gather and extirpate it; aye, and the true Maiden-Hair also if they but 'knew the ropes.'

As for Lincolnshire, for so long *terra incognita*, only eight of these earliest records for all England come from within its marches. These commencing with 1597 (*Cochlearia officinalis* and *Atropa*, both Gerardean), range through 1633 (*Gentiana pneumonanthe* and *Stratiotes*—Gerardean, too) to 1690 (*Œ. Lachenalii*, Ray), and 1695 (*Obione pedunculata*, Plukenet) to 1839 (*Viola stagnina*, Nicholson), 1845, and last, but far from least important, 1881;—this being the date of the discovery of *Selinum Carvifolia* by the Rev. W. Fowler, thereby confirming his connection in 'Apostolic succession' with those Fathers of Herbary, Gerarde and John Ray!

The records for Northumberland begin with William Turner, whose 'Names of Herbes' (1548), and in a lesser degree his Herball (1551-68), furnish most of the earliest notes for any county. Amongst them is the first mention of the Common Heather for Britain (1551), *Meum Athamanticum*, and the horseradish. The first Scottish plant to be recorded was *Trientalis* by Bauhin in 1620. The Scotch Fir, Cæsar notwithstanding, found its standard-bearer in John Parkinson, so late, comparatively, as 1640. The first Hibernian plant to be placed on the roll of fame was *Arbutus Unedo*, the Strawberry-tree (also in 1640 by the same compiler) which might thereby, not unfancifully be held to warrant the still prouder title of the Irish Laurel.

F. Arnold Lees.

NOTES AND NEWS.

As the 9th edition of the London Catalogue has been noticed in these columns, little need be said except in praise of Mr. W. A. Clarke's 'First Records of British Flowering Plants,' 1894, 8vo, reprinted from the 'Journal of Botany,' 1892-1896 (West, Newman & Co., 3s. 6d.). Some at any rate of our readers will appreciate the efforts of a writer, of sound knowledge, to put on record the first appearance in print of our native species, in such a manner as to be understandable to botanical people. A summary, a note on nomenclature, and an index complete the volume. In the main, the order of London Catalogue, edition 8, is followed, so we get no *Buda* and no *Carex Hudsonii* Ar. Bennett, but in place of the latter a name that may not be more agreeable to Mr. Lees—*C. elata* All. (1785)= *C. stricta* Good. (1792); and Mr. Clarke proceeds 'For earlier (? doubtful) synonyms see Bab., Fl. Cam., 260; Ray, Syn., ed. ii., 264, 4; and Hudson, ed. ii., 412 (*cæspitosa*).' But *Potentilla sylvestris* Neck. and *Scilla festalis* Salisb. are there. In looking through the book we noted that in the area named on our title page, Yorkshire heads the list of first records with 60, Westmorland 20, Northumberland 17, Lancashire 14, Lincoln 8, Cumberland 7, Cheshire 4, Durham 3, and two each for Derby, Notts., and Isle of Man. Again we must say,

will no publisher provide us with an English Flora in portable form, for although this book helps in disentangling the synonyms, it contains no descriptions. About the casing of this particular book we have a grumble—we have had it five days, read it twice, and now it is coming to pieces. Why will publishers send books out in so unserviceable a manner? The compiler has, of course, nothing to do with this, and of his work we can say it is thoroughly good, and fills a vacant place, and reminds us of Butler's lines (will Mr. Clarke forgive us?):

And ever ready was to quote
Authorities for what he wrote. —S.L.P.

THE ROSEATE TERN STILL A BRITISH BREEDING BIRD.

E. G. POTTER,
York.

It is with pleasure that I record the fact that this elegant and beautiful bird (*Sterna dougalli*) is not yet extinct as a British breeding species, and that it has still a regular nesting haunt in the British Isles.

Readers will be aware that eminent and leading ornithologists have for some years been of opinion that the Roseate Tern only visited our coasts as a casual summer migrant, and this has been so stated in all recent works on British ornithology. Indeed, the late Mr. Henry Seebohm states:—'It is doubtful whether the Roseate Tern nests in any part of the British Islands at the present time.'

However, for the last few years I have known of a colony of these birds nesting annually in Britain; but, of course, for obvious reasons I must refrain from disclosing the precise locality. In 1895 I sent Mr. J. T. Proud, of Bishop Auckland, specimens of their eggs, and informed that gentleman the whereabouts of the locality, and last year he visited the place, saw the birds, and obtained specimens of their eggs. I understand he has had the pleasure of supplying the British Museum authorities with specimens of their eggs, and has satisfied them (the B.M. authorities) that this Tern is still a British breeding species.

It is satisfactory to know that this rare species has selected a portion of these islands where they are not likely to be much molested by man; in fact, as can readily be supposed, it is 'far from the madding crowd,' and it is to be hoped that those gentlemen who are already aware of the habitat in question will keep it a secret for the sake of the birds and of British Ornithology.

I might also point out that their eggs are readily distinguishable from those of the Arctic and Common Terns.

March 3rd, 1897.

In Memoriam.

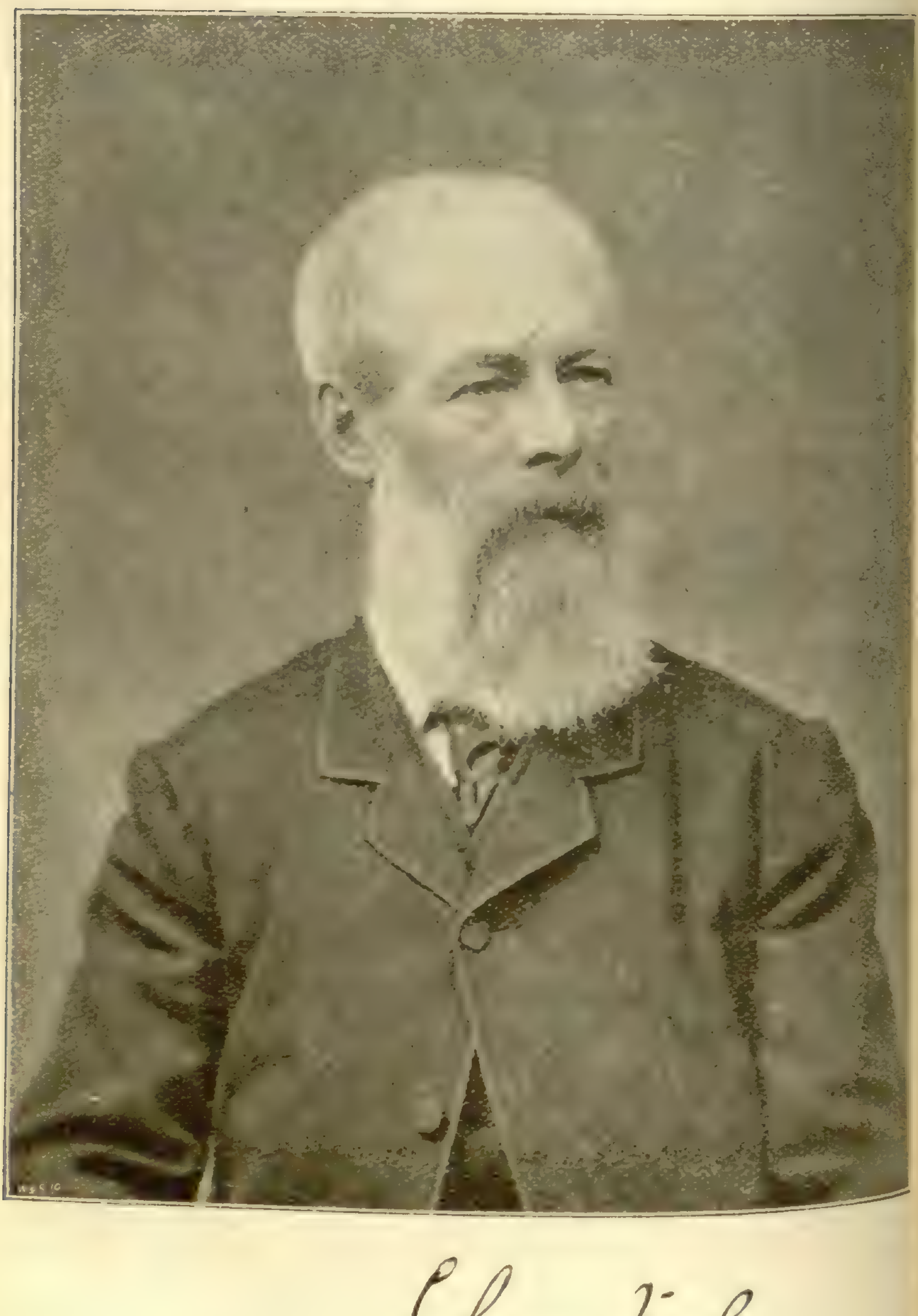
ALEXANDER HENRY GREEN.

Apart from his general reputation as a geologist, the late Professor Green's eight years' connection with the Yorkshire College and his Presidency (in 1891) of the Yorkshire Naturalists' Union had made for him a wide circle of acquaintance in the North of England, and to all who knew him his death last August must have been a matter of sincere regret.

Born in 1832, he received his early education at Ashby-de-la-Zouch Grammar School under his father, the Rev. T. S. Green. Proceeding to Cambridge, he studied mathematics, and graduated as Sixth Wrangler in 1855, being elected in the same year to a Fellowship at his College (Caius). The effect of his mathematical training is very clearly to be traced in his subsequent work, giving a stamp of thoroughness to his methods and precision to his results. Geologists, as he remarked at Leeds when presiding over Section C of the British Association, are in continual danger of becoming loose reasoners, grasping at general ideas without submitting them to quantitative tests; and, although he modestly pleaded guilty to the same tendency, his own writings are noticeably free from the weakness which he deprecated. The same clearness of view and desire to face the exact conditions of every debatable question are found in his 'Physical Geology.' His lectures and writings were remarkable for lucidity, the language being chosen to reflect accurately the image in his own mind. His lecture-notes were marvels of neatness.

Green's active career divides into three periods: his connection with the Geological Survey from 1861 to 1874, his residence at Leeds, and his tenure of the Professorship of Geology at Oxford, where he succeeded the late Sir Joseph Prestwich in 1888. In the course of his work for the Geological Survey he mapped considerable tracts of the Jurassic and Cretaceous rocks of the Midland counties, and especially of the Carboniferous rocks of Yorkshire, Derbyshire, etc. Of the numerous official memoirs of which he was author or joint-author, the most important was 'The Geology of the Yorkshire Coal-field,' published in 1878. It was as an authority on the Carboniferous formations and an expert in matters connected with coal-mining that he was best known; and in 1882 the Cape Government selected him to examine and report on the coal-formation of that colony.

Green's residence in Yorkshire could only be regarded by his friends with mixed feelings. He did much excellent work there,



Yours truly

A. H. Green

Naturalist

published good books, and accumulated valuable knowledge. Whenever an opening offered itself he taught clearly and vigorously. But his students were few, and there was great discouragement. It is a peculiarity of our examination-ridden age that the highest attainments in the teacher will not attract students unless there is also the bribe of a place in some professionally serviceable class-list. Geology counted for very little in examinations, and accordingly Green had very few students. He was at last obliged to teach Mathematics as well as Geology.

During this anxious and disappointing time, Green worked away bravely. He was always busy, and always managed to have on hand some solid piece of routine work, which helped to keep him in tolerable spirits. He walked much in the open air, taking care to visit every new geological section of interest in the West Riding. His contributions to scientific journals were pretty frequent, and he was often invited to lecture. But at times he felt that his faithful services had not met with the reward that was due.

To so busy a man the removal from Leeds to Oxford must have been in some degree a retirement, although the duties of his new office were by no means trifling. Occupying the Chair of Buckland, Phillips, and Prestwich, he was in the midst of ground rendered classic by the work of those and other geologists. Those who attended the meeting of the British Association at Oxford in 1894, and took part in the excursions which Professor Green organised and carried out to famous localities in the neighbourhood, can judge of the pleasure that he would take in such surroundings, and they will not have forgotten the readiness to impart information and the genial humour which added zest to any expedition under his guidance. He was before all a field-geologist. To him geology was an open-air pursuit, and the love of this the most important side of the science, fostered no doubt by his life as a geological surveyor, never left him. In the address to which allusion has already been made, he advocated this practical study as a subject in the education of boys, a word which, he remarks, is intended to include girls also.

Of the various official positions which Professor Green held at different times, we need not make detailed mention. He was well known at the Geological Society, and fulfilled more than one term of service on its Council, where his wide knowledge and sound judgment were highly valued. The Council awarded him the Murchison Medal in 1892, and he was elected a Vice-President of the Society two years later. He also served for a time on the Council of the Royal Society, of which he had become a Fellow in 1886.

Green was a man of simple tastes. He hated every kind of pretence, liked plain food, plain writing, and plain speech. He was never afraid to say 'I do not know,' and would make good-humoured fun of the practice of giving a hard name to a thing in the belief that it was thereby explained. Those who had dealings of any kind with him found that he was straightforward and honourable. His friends knew that he was also considerate and self-sacrificing. He attained that degree of success which suited a man who was self-respecting but not ambitious. He was widely known and thoroughly respected. No epoch-making discovery, no brilliant but fallacious doctrine is associated with his memory; he was simply a hard-working and useful student of science.

As a teacher he was eminently practical. Beginning with a piece of sandstone and a piece of granite, he would show how they could be studied by pounding, washing, treatment with acid, etc. The microscope he introduced at the earliest stage. He was skilful in devising simple modifications of experiments, such as those of Daubrée, and these he would exhibit to his class. In the field his students were taught early to develop their own resources. He would set them to some simple piece of mapping or section-drawing, subsequently going over the work with them to check and criticise when necessary.

Some of the facts cited above are taken from a notice in the 'Geological Magazine' for October 1896, while for information relative to Professor Green's work at Leeds we are indebted to Professor L. C. Miall and Mr. W. W. Watts. A. H.

NOTES—ORNITHOLOGY.

Red-backed Shrike at Spurn.—When at Spurn Head in June 1895, with my friend Mr. W. Hewett, of York, we each saw on separate occasions a male specimen of the Red-backed Shrike (*Lanius collurio*), in fine plumage. I think it is somewhat unusual for this common Southern-English migrant to be in such a barren locality as Spurn Head in the breeding season.—E. G. POTTER, 14, Bootham Crescent, York, March 18th, 1897.

Large Clutch of Eggs of the Sparrow Hawk.—Whilst rambling in a wood not far from York on May 21st, 1896, I espied a large nest of sticks, built on the over-hanging branch of a large fir tree, about 30 feet from the ground, and parallel with it. Being well acquainted with Sparrow Hawks' nests, I concluded this was one, and therefore climbed to it and saw therein, to my surprise, *seven* eggs of the Sparrow Hawk (*Accipiter nisus*). I do not think such a large clutch has previously been recorded, and I believe it has always been understood that six eggs was the maximum number, and clutches of *six* are rare. The seven eggs are very much like each other, all having the same 'family likeness' as it were, being marked with small spots, none of them having large blotches. I may mention that the nest was unusually large and, although I did not measure it, I should say it was more than two feet in diameter; and it would appear the parent birds had made provision for a large family. The nest was undoubtedly built by the Sparrow Hawks themselves, and certainly no one had previously climbed the tree. —E. G. POTTER, 14, Bootham Crescent, York, March 18th, 1897.

PRELIMINARY LIST OF THE NEUROPTERA AND TRICHOPTERA OF YORKSHIRE

(OMITTING PSOCIDÆ AND EPHEMERIDÆ).

G. T. PORRITT, F.L.S., F.E.S.,
Crosland Hall, Huddersfield.

As nearly ten years have now elapsed since I made an appeal in this Journal (see 'Naturalist,' June 1887, p. 180), in connection with these insects, it seems desirable that an account of what has been done should be placed on record. The list is very far from complete as representing the species which must occur in our large county, and it will continue to be so until we have more workers on these orders. To me the study of them has been, and still is, an intense pleasure. No other group of insects can be more advantageously worked—indeed, perhaps none so well—along with the lepidoptera; and if I can induce some of the students of the more fashionable order to take an interest in these as well (together they only contain a comparatively small number of species), I am sure they will be more than repaid, and may, indeed, in time come to regard them as the more fascinating groups. It is worth noting in this connection, that with one exception, all our present-day British neuropterists and trichopterists have commenced their entomological career as lepidopterists.

Some of the members of our Union, and others outside it, have assisted me right well by sending specimens they have casually captured whilst working at their own special groups, and in this connection I must especially thank Messrs. G. C. Dennis, John Harrison, S. L. Mosley, William Hewett, B. Morley, William Mansbridge, and J. W. Carter.

PSEUDO-NEUROPTERA.

ODONATA.

Leucorrhinia dubia. I have taken this rather local species on Thorne Moor at the end of May.

Sympetrum scoticum. Abounds on Thorne Moor and Riccall Common, and no doubt on other similar heaths.

Libellula quadrimaculata. Thorne Moor.

Libellula fulva. Mr. S. L. Mosley took several specimens of this very rare dragonfly at Askern in June 1888, one of which I have in my collection.

Æschna juncea. Sandburn, York.

Æschna cyanea. York (Rev. W. C. Hey); Thorne. This and the preceding species are so nearly alike, it is impossible to distinguish them unless captured. One or other, or both of them, probably occur all over the county, but still very rarely in some parts of the south West Riding. Huddersfield, and Wharncliffe Rocks (plentiful on the small ponds near the house) are localities where I have seen them.

Æschna grandis. York (W. C. Hey).

Calopteryx virgo. This beautiful species is abundant on the streams in and near woods at Castle Howard. Mr. George Parkin says it used to be common near Haw Park, Wakefield, but appears now to have disappeared from that locality.

Calopteryx splendens. Also abundant at Castle Howard, but seems to be almost confined to the open river, whereas its near relative *C. virgo* prefers the waters shaded by hedges and woods. Mr. G. C. Dennis has taken it at Newton-on-Ouse, near York.

Lestes sponsa. Common at Thorne; and on Strensall Common, York.

Ischnura elegans. Probably on suitable old ponds and rivers in all parts of the county. York; Castle Howard; Huddersfield.

Agrion cyathigerum. A very pretty and common species. Huddersfield; Wakefield; Askern; Barnsley (J. Harrison); Castle Howard.

Agrion pulchellum. Castle Howard (G. C. Dennis); Askern; Sandburn, York.

Agrion puella. Common. Bishop's Wood, Selby; Thorne; Askham Bog, York; Castle Howard.

Pyrrhosoma minium. Abundant. Thorne; Bishop's Wood, Selby; Wharncliffe Craggs; Doncaster.

PERLIDÆ.

Dictyopteryx microcephala. Sent to me from Bolton Woods, near Ilkley, by Mr. J. W. Carter.

Perla cephalotes. I took this insect at the Tin Brigg, Linton Falls, near Skipton, on the occasion of the Union's excursion there, June 20th, 1891; Mr. Wm. Hewett found it in abundance between Redmire and Aysgarth, on May 21st, 1893; and I have specimens labelled 'Pickering,' also from Mr. Hewett.

Chloroperla grammatica. Probably common everywhere. Huddersfield; Dunford Bridge; Grassington; Barnard Castle; Aysgarth.

Isopteryx burmeisteri. Pennyspring Wood, Huddersfield, abundant.

Isopteryx tripunctata. Common. Dunford Bridge; Wharncliffe Woods; Grassington; Bolton Woods.

Tæniopteryx nebulosa. Taken by Mr. G. C. Dennis at Pickering on February 1st, 1895. An early species, but this is probably its earliest recorded date.

Tæniopteryx risi. This species, only recently added to the British list, was taken by Mr. Robert McLachlan and myself at Dunford Bridge, on June 18th, 1895.

Leuctra geniculata. Scalby Beck, Scarborough; Pickering.

Leuctra fusciventris. No doubt abundant everywhere. Huddersfield; Dunford Bridge; Horton-in-Ribblesdale; Malham; Castle Howard; Hayburn Wyke; Pickering; Saltburn.

Nemoura variegata. Another very plentiful species. Huddersfield; Wharncliffe Woods; Bolton Woods; Askham Bog, York; Bishop's Wood, Selby; Castle Howard.

Nemoura cambrica. Huddersfield; Grassington (W. Mansbridge).

Nemoura meyeri. Very common. Huddersfield; Wharncliffe; Malham; Horton-in-Ribblesdale.

Nemoura marginata. Dunford Bridge; near Huddersfield; Wharncliffe Woods: Horton-in-Ribblesdale.

Nemoura cinerea. Plentiful. Huddersfield; Askham Bog, York; Grassington.

NEUROPTERA-PLANIPENNIA.

SIALIDÆ.

Sialis lutaria. Abundant everywhere. Huddersfield; Wakefield; Doncaster; Castle Howard.

Sialis fuliginosa. Not uncommon, and appears rather later than *S. lutaria*. Huddersfield; Skelmanthorpe; Dunford Bridge; Castle Howard, common.

RAPHIDIIDÆ.

Raphidia notata. Not uncommon at Bishop's Wood, near Selby; Haw Park, Wakefield; York (R. McLachlan).

Raphidia xanthostigma. Wharncliffe Woods, fairly common; Green Farm Wood, Doncaster, not uncommon; Castle Howard.

PANORPIDÆ.

Panorpa communis. Very common in most places. Doncaster: Saltburn; Castle Howard.

Panorpa germanica. Perhaps even more abundant than the last, and varies very much in the number and size of the spots: some specimens are almost without, approaching variety *borealis*: others, notably some of the Thorne examples, being heavily marked. Huddersfield; Dodworth; Wharncliffe; Bradford: Doncaster; York; Selby; Thorne; Castle Howard.

OSMYLIDÆ.

Osmylus maculatus. This beautiful insect is abundant along the stream in the wood at Castle Howard.

Sisyra fuscata. Castle Howard.

HEMEROBIIDÆ.

Micromus paganus. Very common in the south West Riding, but I have not noticed it so much in the other divisions. Huddersfield, abundant; Wharncliffe Woods.

Hemerobius nitidulus. Huddersfield, in fir woods.

Hemerobius micans. Common. Huddersfield; Dunford Bridge; Wharncliffe Woods; Wakefield; York.

Hemerobius humuli. Plentiful no doubt everywhere. Huddersfield; Mirfield; Dodworth; Selby; Saltburn.

Hemerobius orotypus. Probably as abundant and as widely distributed as *H. humuli*. Huddersfield; Dunford Bridge; Grassington.

Hemerobius marginatus. Much rarer than the last two species, and I have only seen it in the eastern side of the county. Askham Bogs, York; Castle Howard.

Hemerobius limbatus. Abundant in fir woods, etc.; south West Riding specimens especially are often very dark in colour. Huddersfield; Dunford Bridge; Thorne Moor; Sandburn, York.

Hemerobius atrifrons. Thorne, near Goole; Sandburn, York.

Hemerobius subnebulosus. Abundant probably everywhere, and very variable in size and depth of colour, many being almost black. Huddersfield; Dunford Bridge; Barnsley; Horsforth; Doncaster.

Hemerobius nervosus. I have taken this at Askham Bogs and at Sandburn, York, but have not seen it elsewhere.

Hemerobius concinnus. I have taken the typical brown form at Warthill, York; but at Sledmere, where it is plentiful, only

the whitish-hyaline form seems to occur. Until I found this form at Sledmere it had scarcely been observed in Britain, but Mr. C. A. Briggs has since found it in Surrey. It is well worthy of a varietal name.

CHRYSOPIDÆ.

Chrysopa flava. Abundant probably everywhere. Huddersfield; Doncaster; Castle Howard; Saltburn.

Chrysopa vittata. Closely allied to *C. flava*, but not nearly so common. Huddersfield; Bishop's Wood, Selby; Sandburn, York; Castle Howard.

Chrysopa alba. Very common on the east side of the county, scarcer on the west side. Huddersfield; Doncaster; Selby; Castle Howard.

Chrysopa flavifrons. Green Farm Wood, Doncaster; Sandburn; York; Castle Howard.

Chrysopa tenella. This small species, formerly considered very rare in Britain, seems to occur all over our county, and is not uncommon even in my own garden. Huddersfield; Wharncliffe Woods, common; Askham Bogs, York; Bishop's Wood, Selby; Thorne; Castle Howard; Saltburn.

Chrysopa vulgaris. This, which *ought* to be common, seems to be our rarest species. I have searched closely for it, but the only Yorkshire specimen I have ever taken was on the hill behind my house, beaten out of a sallow bush on June 12th, 1894.

Chrysopa aspersa. Sandburn, York; Thorne, near Goole.

Chrysopa ventralis. I have a very strong opinion that this is only a variety of *C. aspersa*, from which it only differs in having the underside of the abdomen black. Whenever I have found one common, the other has, I think, always occurred with it, and although I have only taken a few specimens in all in our own county (including both forms), the rule holds good at Sandburn, the only place where I have taken more than odd specimens. Sandburn, York; Green Farm Wood, Doncaster.

Chrysopa phyllochroma. A beautiful specimen on Thorne Moor, July 18th, 1891, is the only example I have yet seen.

Chrysopa perla. This *blue*-winged species (all the rest of the genus have green wings of various shades) is very common in many of our woods. Wharncliffe Woods; Dodworth; Green Farm Wood, Doncaster; Bishop's Wood, Selby; Sandburn, York.

April 1897.

Nothochrysa capitata. This generally rare insect is by no means scarce with us, and is widely distributed. I have it from Huddersfield (one specimen taken at Newsome by Mr. Wattam in 1895); Green Farm Wood, Doncaster; Bishop's Wood, Selby; Sandburn, York; York City (G. C. Dennis); and Castle Howard.

TRICHOPTERA.

Phryganea grandis. Castle Howard, fairly common; Askham Bogs, York.

Phryganea striata. Apparently much commoner than *P. grandis*. Huddersfield, plentiful; Wharncliffe Woods; Bradford.

Phryganea varia. Thorne Moor, abundant; Huddersfield, one specimen; Skipwith, near Selby (Rev. C. D. Ash); Bradford (J. W. Carter).

Phryganea minor. A single specimen given to me by Mr. G. C. Dennis, taken at Askham Bogs, York, is the only one I have seen.

Neuronia ruficrus. Common on the pond at Wharncliffe; Dodworth; Doncaster; etc.

Grammotaulius atomarius. Askham Bogs, abundant; Bishop's Wood, common; Thorne; Huddersfield, rare.

Glyphotælius pellucidus. A common and very variable species. The most striking and beautiful specimen I have ever seen was sent to me by Mr. John Harrison, of Barnsley, a Yorkshire example, but the precise locality of which he was doubtful. Askham Bog, York; Castle Howard; Bretton Park, Wakefield (G. W. K. Crosland); Bishop's Wood, Selby; etc.

Limnophilus rhombicus. Abundant probably everywhere. Huddersfield; Bradford; Castle Howard; etc.

Limnophilus flavicornis. Askham Bogs, York, common; Thorne; etc.

Limnophilus marmoratus. Thorne Moor, not uncommon; Wharncliffe Woods, near Penistone.

Limnophilus stigma. Huddersfield, one specimen; Askham Bogs, York.

Limnophilus xanthodes. A single specimen at Castle Howard in June 1896.

Limnophilus lunatus. Common probably everywhere. Huddersfield; Thorne; York; Beverley (W. Hewett); etc.

Limnophilus politus. Of this local species Mr. John Harrison sent me a specimen 'certainly taken in Yorkshire,' but in which of his 'lepidoptera collecting' localities he did not know.

Limnophilus centralis. Probably abundant everywhere. Huddersfield; Wharncliffe Woods; etc.

Limnophilus vittatus. Equally abundant as the last. Huddersfield; Barnsley; York; Saltburn; Doncaster; etc.

Limnophilus affinis. Huddersfield; York; Saltburn, abundant.

Limnophilus auricula. Abounds in Askham Bogs, York; and at Bishop's Wood, near Selby; I have also taken it, but not so freely at Thorne and Castle Howard.

Limnophilus griseus. Also an abundant species, especially on the east side of the county. Askham Bogs; Bishop's Wood; Thorne; Wharncliffe Woods; Dunford Bridge.

Limnophilus extricatus. Common about old ponds, etc. Huddersfield, abundant; Askham Bogs; Castle Howard.

Limnophilus hirsutus. Askern; Castle Howard; Saltburn; and other places.

Limnophilus luridus. An abundant species at Askham Bogs, York, coming freely to the lepidopterist's 'sugar,' but I have not taken it elsewhere.

Limnophilus sparsus. No doubt occurs throughout the county, and is especially abundant on tree trunks at Sandburn, York. Huddersfield; Wakefield; York; Selby; Castle Howard; Saltburn.

Limnophilus fuscicornis. This local species is abundant at Castle Howard in June. Mr. J. W. Carter sent me one taken in the Bradford district: and Mr. S. L. Mosley gave me an example from near Wakefield.

Anabolia nervosa. Probably one of our most abundant species everywhere. Huddersfield; Bradford; Castle Howard: Pickering; Scarborough; etc.

Phacopteryx brevipennis. One of the very rarest of British trichoptera, there being only some half-dozen specimens known in collections. In January 1890 I found in Mr. G. C. Dennis' boxes a specimen taken at York (probably at Askham Bogs), which he kindly gave to me; and during the same year Mr. George Jackson took two more (also believed to be at Askham Bogs), which are now in Mr. Alfred Beaumont's collection. Mr. McLachlan possesses it from Scarborough in September 1862.

Asynarchus cœnosus. Entirely a northern species. Abounds on the high moorlands in the south West Riding, as at Marsden, near Huddersfield, and Dunford Bridge. I have also taken it on Thorne Moor.

Stenophylax alpestris. Another great rarity in Britain, and our own county locality—the wood at Dunford Bridge—is now the only precise spot where it is known to occur. The first specimens taken there were by Mr. John Harrison, of Barnsley, in 1891, since which time it has also been taken by myself and Mr. William Mansbridge, as well as again by Mr. Harrison.

Stenophylax infumatus. Mr. G. C. Dennis took a fine specimen of this northern species when collecting with me at Castle Howard on the 13th of June last (1896).

Stenophylax rotundipennis. A rare species everywhere. Mr. R. McLachlan took it at Scarborough in the second half of August 1866; and I captured a fine example at Castle Howard on the evening of September 8th last (1896).

Stenophylax stellatus. Common. Huddersfield; Castle Howard; Pickering; Grassington.

Stenophylax latipennis. I have specimens labelled Huddersfield, Dunford Bridge, Saltburn, etc., but am a little doubtful about some of them. The species is very closely allied to *S. stellatus*, and the females I am quite unable to separate. I am inclined to think *S. stellatus* is the commoner insect in the eastern division, and *S. latipennis* probably so in the south-western division.

Stenophylax concentricus. Seems to occur everywhere, but not abundantly anywhere. Huddersfield; Doncaster; Selby; York; Beverley; Malham; Hayburn Wyke.

Stenophylax vibex. In 1896 Mr. B. Morley gave me several specimens he had taken during the year at Skelmanthorpe, near Huddersfield, where it is evidently not uncommon, but I have never seen it elsewhere in the district. Mr. R. McLachlan records it from Thorne Moor and from Scarborough.

Micropterna sequax. Apparently common throughout the county. Huddersfield; York; Saltburn; Beverley (William Hewett); Castle Howard; etc.

Micropterna lateralis. Common on the Meltham Moors, above Huddersfield, and exceptionally dark in colour. I have also taken it at Castle Howard.

Halesus digitatus. Apparently not very common. Bishop's Wood, Selby; Castle Howard (G. C. Dennis).

Halesus radiatus. A species very closely allied to *H. digitatus*, but much commoner. It abounds on the ponds in the grounds at Crosland Hall, Huddersfield; and I found it in equal plenty at Castle Howard, where the specimens are rather larger and paler than the Huddersfield form. York (G. C. Dennis); Leeds (William Mansbridge).

Halesus auricollis. Local, but abundant in its localities. I found it plentiful near Malham Cove on September 13th, 1890; and Mr. R. McLachlan records that on September 24th, 1873, he found it 'in myriads all the way from Ilkley Station to Bolton Abbey, Wharfedale (about seven miles). By shaking a branch near the river the air became alive with the caddisfly, and the grass swarmed with it.' (E. M. M., x., p. 140.)

Halesus guttatipennis. Until November 1895 only three specimens of this species had been recorded in Britain, all taken singly, and the precise locality of none of them being certain. On November 9th, 1895, Mr. G. C. Dennis, of York, whilst fishing in the river at Pickering, observed a trichopteron flying in large numbers, specimens of which he afterwards brought to me for determination, when they proved to be this rarity. On Oct. 28th last (1896), I accompanied Mr. Dennis to the locality, and we found the species was in the utmost profusion—almost indeed a parallel case to that of *H. auricollis* as recorded by Mr. McLachlan on the Wharfe. Pickering is at present *the* locality for *H. guttatipennis*. (See E. M. M., January 1897, p. 14.)

Drusus annulatus. Huddersfield, common; Wharncliffe Woods; Hayburn Wyke.

Ecclisopteryx guttulata. Recorded as common at Huddersfield by Mr. Alfred Beaumont, but I have not seen it nearer than Dunford Bridge (9 miles). Between Redmire and Aysgarth (W. Hewett).

Chætopteryx villosa. A late autumn species, and probably generally common if looked for. Abundant in the grounds of Crosland Hall, Huddersfield; equally so at Pickering; and Mr. Dennis found it common at Castle Howard.

Sericostoma personatum. This singular black-looking species is common on the beck at Castle Howard. It flies in the sunshine.

Goera pilosa. Greenfield (S. L. Mosley); York.

Silo pallipes. Huddersfield; Shipley Glen, near Bradford (J. W. Carter); Castle Howard; and doubtless in many other places.

Crunæcia irrorata. Recorded from Huddersfield by Mr. R. McLachlan, but I do not know on whose authority.

Lasiocephala basalis. One specimen at Castle Howard in 1896.

Beræa pullata. Abundant on herbage beneath dripping rocks at one end of Pennyspring Wood, Huddersfield. Also taken at Dunford Bridge.

Beræa maurus. Apparently equally common with the last in the same place at Huddersfield.

Molanna angustata. Common. Frizinghall, Bradford (J. W. Carter); on the canal at Thorne; Sherburn (G. C. Dennis); Castle Howard.

Leptocerus nigro-nervosus. I found this species commonly on the river at Castle Howard in 1896; Mr. Dennis also sent it me from York in 1890.

Leptocerus annulicornis. Castle Howard; Mr. Dennis also gave it me, he believed, from York.

Leptocerus aterrimus. Abundant on many of the old reservoirs about Huddersfield; Bradford; no doubt generally distributed.

Leptocerus cinereus. York (G. C. Dennis); in countless thousands on the river at Castle Howard, where, during the time it is on the wing, it evidently forms the chief diet of the colonies of Sand Martins there.

Leptocerus commutatus. Recorded from Scarborough by Mr. R. McLachlan.

Leptocerus bilineatus. Castle Howard.

Mystacides nigra. Abundant. Thorne; Askern; Scalby Beck, Scarborough.

Mystacides azurea. Also very plentiful. Huddersfield; Bradford; York; Castle Howard.

Mystacides longicornis. Common on canals and old reservoirs. Huddersfield; York; Thorne.

Triænodes bicolor. Castle Howard.

Œcetis notata. This very local species is recorded as being abundant on the River Wharfe at Tadcaster, by Mr. Francis G. Binnie, in the 'Entomologists' Monthly Magazine,' vol. xv. p. 91.

Œcetis testacea. Also recorded as abundant on the Wharfe at Tadcaster, in company with *Œ. notata*, by Mr. Binnie.

Hydropsyche instabilis. On the stream at Grimescar, Huddersfield, and no doubt generally common in the county.

Hydropsyche angustipennis. Abounds at 'Sheard's Dam,' Huddersfield, and is in smaller numbers on other old reservoirs in the same district.

Diplectroma felix. Scarborough (R. McLachlan).

Philopotamus montanus. I found this pretty and lively sun-loving species on a clear running stream at Diggle, where it was apparently fairly common, on August 4th, 1892, the only occasion on which I was ever on that precise spot.

Wormaldia occipitalis. Common on the stream in Penny spring Wood, Huddersfield.

Wormaldia subnigra. Scarborough (R. McLachlan).

Plectrocnemia conspersa. Abundant. Huddersfield; Dunford Bridge; Castle Howard.

Polycentropus flavomaculatus. Abundant at Castle Howard; Grassington.

Holocentropus dubius. York.

Holocentropus picicornis. Huddersfield, and no doubt elsewhere.

Cyrnus trimaculatus. Huddersfield; Greenfield; Castle Howard.

Tinodes wæneri. In profusion on Scalby Beck, Scarborough; Castle Howard.

Tinodes dives. The only occasion on which I have met with this local species was at the Union's Excursion to Grassington on June 13th, 1891; it is probably not uncommon there.

Rhyacophila dorsalis. Abundant. Huddersfield; Wharncliffe Woods; Castle Howard; Scarborough.

Rhyacophila obliterata. Scarborough (R. McLachlan).

Agapetus fuscipes. I have a note that I took this insect at Malham, but do not seem to have any of the specimens.

SUMMARY.

	British.		Yorkshire.
Pseudo-Neuroptera (excluding Psocidæ and Ephemeridæ)	70	...	29
Planipennia	51	...	30
Trichoptera	162	...	79
	283	...	138

As will be seen from the foregoing, not half the known British species are yet recorded as occurring in our county, and it suggests at once how much there is yet to be done. With our large area,

and immense variety of ground, there is every reason to believe that when as thoroughly worked as the lepidoptera have been, our proportion of species will be quite as large as is the case in that order. Our dragon-flies especially want attention, as it cannot but be that a number of others occur with us. I have indeed little doubt that I have seen both *Platetrum depressum* and *Orthetrum cærulescens* in such places as Sandburn, but not having actually captured them, have been compelled to omit their names from the list. With several earnest workers in the field, a few years' time ought to see quite half as many more species added to the list. Who will assist?

NOTE—ORNITHOLOGY.

Sclavonian Grebes at Easington in Holderness.—A Sclavonian Grebe (*Podiceps auritus*) shot here on February 7th, also another on the 15th; both males.—PHILIP W. LOTEN, Easington, March 1st, 1897.

NOTES—BOTANY.

Cephalanthera ensifolia Rich. in Yorkshire: An Early Record.—From the record on page 435 of Lees' 'Flora of West Yorkshire' it would appear that this plant was first found at Tadcaster by O. A. Moore in 1840. It may therefore be worth while calling attention to the fact that there is, in the British Herbarium of the Natural History Museum, a specimen accompanied by the label: 'Herb.—J. Carroll—1874. | *Epipactis ensifolia* Sw. | Near Tadcaster, Yorkshire. | 1834 Mr. Mumby (sic).' The collector was Giles Munby (author of the 'Flore de l'Algèrie,' etc.); he would be 21 at the time, having been born at York in 1813. —W. WEST, jun., London, S.W., March 19th, 1897.

Comical Criticism.—A 'record' in reviewing has been achieved by the witty editor of the 'Journal of Botany.' In the March number, his comments upon a recent 'Kew Bulletin' (No. 121), the issue of which, said the 'Times,' is one of the most useful functions discharged by Kew Gardens, is, fitly enough, curious indeed! First we have a reflection—in two senses, grave or gay as we choose—on the association of Daydon Jackson with such a (cause) list: 'Prisoner, you have received a good education, and a brilliant career lay open before you, instead of which you go about the country stealing ducks.' Then, as gloss upon the claim made by the Kew List, that it is confined—as prisoners are—to 'smaller' publications, we have the amusing asperge of criticism that incarcerated among the smaller fry there is 'an elephant folio'! Further, the 84 pages of the List, we are told 'absolutely teem with pot-boilers.' The writer wonders what are the articles—things of little art?—of 'merely ephemeral interest,' if those cited are of lasting renown; the key, not of the jailor, to which, 'making certain omissions the more remarkable,' is, that the editor (and reviewer) of the 'Journal of Botany' during his two years at Kew printed several Notes, noticed in the Roy. Soc. Cat., which are not scheduled in Mr. Jackson's list. To 'cap' all, as becomes captious reviewing, it is remarked that among the entries of scientific mathesis—more or less, is one bearing the 'exciting title' of 'Collection of Hairs after Earthquakes in China,' reminiscent of the 'Penny Dreadful' truly, wherein Dr. Dyer's share is practically confined (again!) to *one* sentence, ending with the lame conclusion that 'the white hairs have no real connection with the earthquake.' After this someone will be setting up as a Botanical Detective, an expert after the type of that cocksurety of fiction, Sherlock Holmes. But, seriously, one may ask, Is not such capricious and catholic application of 'the cat' critical, contributing a new chapter to the (un)gentle Art of Making Enemies? Acumen can hardly be too punctilious.—F. A. LEES.

NEW PLANT-RECORDS FOR LAKE-LANCASHIRE.

JOHN HENRY,

Barrow-in-Furness.

The following plants, which have been kindly examined for me by Mr. J. Cosmo Melvill, F.L.S., are, I am informed, not in the list for North—i.e., Lake—Lancashire.

Delphinium Ajacis Reichb. Alien, possibly an escape. Foxfield-in-Furness.

Geranium pyrenaicum Burm. Denizen probably. Furness Abbey. (Was there in 1871.—F. A. Lees.)

Erodium moschatum L'Hérit. Denizen here? Biggar Bank. Walney Island.

Euphorbia portlandica L. Native. Walney Island.

Rumex conglomeratus × obtusifolius. Native. Roose.

NOTE—BOTANY.

West Lancashire Plants.—From a recent examination of the Herbarium of Mr. J. F. Pickard, I am able to add the two following species to Mr. Henry's list, given above.

Campanula rapunculoides L. Near Hawes Water, Silverdale, 1881, Miss K. Pickard.

Linaria repens Miller. Near Silverdale, 1881, Miss K. P. The specimen looked rather like a hybrid, or perhaps is *L. italica*; if so, probably introduced (and the *Campanula*, too, for that matter) with soil about the roots of nursery-shrubs, as was the case with the same species at the back of Leyburn Shawl quarries in N. Yorks. Many species of plants in stations of recent appearance and observance, the *Goodyera* and *Linnæa* of East Yorkshire cases in point, truly native in other localities, have been and are being unwittingly so introduced into spots wherein they flourish, all over the country. This is one of the factors in the sum of Plant Distribution which latter-day field botanists have to take into account much more than the observers of old time.—F. A. Lees, March 19th, 1897.

NOTES AND NEWS.

The fifth part of the fifth volume of the Botanical Transactions of the Linnean Society, published last December, is devoted to a paper by Messrs. William West, F.L.S., and G. S. West, Ass.R.S.C., 'On Some North American Desmidieæ.' The memoir is illustrated by seven plates from the pencil of the junior author. A large number of the species and varieties mentioned are new, half of those mentioned in the paper being so far unrecorded for North America.

We have been favoured by Mr. Arthur Bennett, F.L.S., with reprints of some of his valuable botanical papers, including 'Notes on Japanese Potamogetones' from the Bulletin de l' Herbier Boissier, Août 1896; a note on 'Juncus tenuis, Willd, in Westerness' from the Annals of Scottish Nat. Hist. for January 1897; and a brief note on 'Iceland and Faroe Botany' from the August number of the Journal of Botany. From Mr. Bennett also we have a copy of Mr. A. Somerville's 'Additions to the known Flora of the South Ebudes, v.-c. 102,' from the October Journal of Botany, in the preparation of which Mr. Bennett gave valuable help.

April 1897.

JUBULA HUTCHINSIÆ: A RARE HEPATIC, NEW TO YORKSHIRE.

MATTHEW B. SLATER, F.L.S.

At the early part of this year, Mr. James Needham, of Hebden Bridge, sent me two tufts of Hepatics which he had gathered near Hebden Bridge. On examination the greater portion of one patch proved to be the frondose Hepatic *Aneura multifida*; growing intimately amongst this I discovered a few scattered plants of the fine and rare Hepatic *Jubula Hutchinsiæ* (Hook.) Dum. = *Jungermania Hutchinsiæ* Hook. I reported this to Mr. Needham, desiring him to search for more of this rarity. Recently he has sent me a good patch of it, and gives me the following description of the locality where he first gathered the plant on December 25th, 1896:—Found growing on sandstones in a damp wood, in a sheltered glen by a small rill which empties itself into the river Hebden. The wood in which it grows has a westerly aspect, and is well sheltered from the north and east by lofty hills.

This beautiful plant was first discovered in the south of Ireland at Glengariff, near Bantry, by Miss Hutchins, and was described and figured by Hooker in his fine work 'British Jungermaniæ' (1820). Hooker remarks: 'This beautiful and very distinct species seems almost wholly confined to the south of Ireland.' It has since been found on the west coast only of our islands.

Dr. Spruce met with it in some abundance during his travels in the equatorial regions of South America, and describes two varieties of it in his erudite work, the 'Hepaticæ Amazonicæ et Andinæ' (1884), and remarks on its distribution in a note, page 62, where he says: 'In various localities along the western coast of England, Wales, and Scotland; and in Ireland it grows in some abundance and fruits freely. Elsewhere in Europe it has not been met with; but what we regard as varieties of the same species exist in the warmer parts of North America, and in the regions adjacent to the equator all round the globe. The question then arises whether the British Isles may be its original home, or rather some spot in the torrid zone.

I have myself gathered the plant in Ireland, where it grows on dripping rocks near the Turk Cascade at Killarney, in a fine well-wooded dell. The Yorkshire glen where Mr. Needham has met with it is evidently a very similar moist and sheltered situation. The plant is a most interesting addition to the flora of Yorkshire, and it is remarkable that it has so long evaded detection, for we know the district was formerly rambled over by such good botanists as James Bolton, John Nowell, S. Gibson, Dr. Wood, etc., etc.

OWLS AND THEIR LONGEVITY.

OXLEY GRABHAM, M.A., M.B.O.U.,

Hon. Secretary to Vertebrate Section of Yorkshire Naturalists' Union.

As a Tawny, Brown or Wood Owl (*Syrnium aluco*) has just completed his sixteenth year of captivity in my possession, and was not a young bird when I first got him, a few words on Owls in general and their longevity in particular may not be out of place. I have kept at various times five different species of Owl: the Barn, White, or Church Owl (*Strix flammea* L.); the Long-eared or Horned Owl (*Asio otus* L.); the Short-eared or Woodcock Owl (*Asio accipitrinus* Pall.); the Tawny, Brown, or Wood Owl (*Syrnium aluco* L.); and the Little Owl (*Athene noctua* Scop.). The first four species breed yearly with us.

The Barn Owl, I have never succeeded in keeping longer than three or four years; it makes the most grotesque faces, and throws itself into extraordinary attitudes; it lives almost entirely on mice, and in many places in the South of England is encouraged by the farmers to come into their barns. I had two young ones, just able to fly and fend for themselves, sent to me last year by a friend who had found them in his pigeon cote, and had turned both old and young out because, I am sorry to say, they had killed and eaten a good many young pigeons. They will not often do this, as I have known them rear brood after brood in similar situations without ever interfering with the pigeons. The birds sent to me I let go. They took up their abode for a week or two in a large ivy-covered poplar, and I used to see them flying about every night. Then they made off to a large wood close at hand, where, I trust, they will dwell secure. I have found their eggs in church towers, barns, quarries, and hollow trees, and the nest often contains both fresh eggs and nearly fully-fledged birds. When wounded they will throw themselves on their backs and bite and claw with great energy. There is the story told of a certain Yorkshire farmer, who, having shot a Barn Owl at dusk one evening, and it having fallen into the churchyard, sent one of his lads to pick it up. The boy came back in a great fright, and blurted out, 'Eh, master, thou'llt cop it. Thou's gone and shotten a cherubim.' I never saw an Owl trained to fly at quarry like a Hawk but once, and that was when an undergraduate at Cambridge. A certain man named Callaby, who used to keep dogs, birds, rats, foxes, *et hoc genus omne*, and had his kennels close to the river bank, had several Barn Owls, and one or two of them would fly from his wrist, either at mice that were let out into the rat-pit, or at those

which used to run about amongst the cages, kill them, and bring them back to their master's call. I very much wanted to buy one of these birds, but I believe the old man would have parted with all that he had sooner than let them go.

The Long-eared Owl is, in my experience, the commonest Owl in the county, and I am glad to say I found many of their nests last year, and most of the young birds got off. They nest very early in the year. I have often found their eggs at the beginning of March, and they generally choose an old magpie's nest, squirrel's drey, etc. In the fir plantations they can often be seen sitting on a branch close to the trunk, with their bodies elongated out of all proportion. They live almost entirely on mice, as can be easily seen by examining the pellets which they cast up, and which are found beneath the trees they frequent; but I have often noticed that they are much too cunning to eject these pellets underneath the tree where their nest is. I have never been able to keep them alive more than three or four years, but I believe that my friend, the Rev. W. Tomlinson, Vicar of North Cave, Hull, has succeeded in keeping them longer, and one of his Owls that I remember had a great partiality for eels. It would eat them greedily. They are often called Screech Owls, and, certainly, where there are a lot of them they do make an unearthly noise; but I like to hear them.

The Short-eared Owl, often called the Woodcock Owl, because it comes over to us in its greatest numbers when the Woodcocks come over, breeds sparingly in the county, and makes its nest on the ground. I have often flushed them when partridge-shooting in October, and also on the coast when wild-fowling. I have generally kept them for three or four years. Like all the Owls, it has a very light and silent flight, and, when put up in broad daylight, seems to be able to see its way about perfectly well. The irides of this species are light golden yellow, those of the Long-eared Owl rich orange.

The Tawny, Wood, or Brown Owl is the largest of our breeding species, and a great favourite of mine. I have kept lots of them, and, in fact, have never been without one since I was a boy at school and kept two of them in a locker in my study. Fine, handsome birds they are, with a great look of wisdom in their large brown eyes, which they frequently blink and cover with their eyelids and nictitating membrane. This Owl gives a genuine honest hoot—tu-whit, tu-whit, tu-whoo-o. I have mentioned the bird which I have had for sixteen years. My father, the late Dr. Grabham, of Pontefract, had one, which was taken out of the tower of Darrington

Church as a young bird, for twenty-one years, and a savage old chap he was to the end of his days. He killed and ate several other Owls that we put in the same cage with him, and I have the marks on my hand now where he clawed me when he once got out, and I found him blinking away in the middle of a large pear tree, with all the birds in the neighbourhood chattering round him. He always had his tub every Sunday morning, curiously enough. All my Owls have been fond of bathing, and he lived on raw meat, small birds, moles, mice of various kinds, including shrews, bats, and young rats, and also on those of his own and allied species who were unfortunately put into his cage. The Tawny Owl, when wild, lives chiefly on mice, and I have seen them quartering at dusk a house-side covered with ivy, and putting their claws in and drawing forth out of his bed our old friend the ubiquitous sparrow. They breed in March, and I have found their eggs, which are large, in holes in trees and in quarries. In the large forests in Germany, where this Owl is pretty common, I have noticed that the birds are much greyer than ours, and somewhat larger. It is astonishing what small bodies Owls really have. They are so thickly clothed with feathers that this is not apparent till one comes to skin them. A very common mistake, which, unfortunately, is still perpetuated in many of our standard works on Ornithology, and which many taxidermists who ought to know better will stick to, is to represent Owls, when perching, as having three toes in front and one behind. In a state of nature or in captivity this is not so—two are in front and two behind.

The Little Owl I have also kept for a year or two. It is fond of throwing itself into extraordinary attitudes, and is an amusing little bird to keep. It is not indigenous to these islands, but at various times specimens have reached our shores from the Continent, where, in places, it is very common. The late Charles Waterton turned some out at Walton, near Wakefield, and, more recently, the late Lord Lilford, in Northamptonshire, and Mr. St. Quintin, in our own county, have done the same, and these birds have established themselves and bred in hollow trees, ruins, etc.

In conclusion, I would put in a plea for the Owls. They do a great deal of good and very little harm, and when the balance of Nature is destroyed, and birds of prey, etc., are exterminated, we are bound to suffer, as witness the plague of field voles in Scotland a short time ago. Whenever I come across a keeper's museum, with Owls and Kestrels gibbetted thereon, I always expostulate, and I am very glad to say that a more appreciative view is gaining ground with respect to the good done by these birds, not only by game preservers and sportsmen, but also by the keepers and farmers

who used to be the first to shoot anything of the kind that appeared on their land. In consequence of this I am pleased to say that in many parts Owls have increased considerably in numbers during the last few years, and, as a natural consequence, the mice are kept from increasing too rapidly and becoming a pest.

In Memoriam.

HENRY BOSWELL.

We grieve, in common with muscologists in all parts of the world, to note the decease, and at no advanced age, of this kindly and ever-helpful expert in that department of Cryptogamic Botany he had made so peculiarly his own. He was a profound bryologist, and his unrivalled knowledge of exotic mosses helped to make him the acknowledged expert in British bryology that he ever showed himself to be. In 1873 he issued a Catalogue of British Mosses of his own, having the previous year published a painstaking paper on 'The Mosses of Oxfordshire and the Neighbourhood of Oxford' (afterwards reprinted) in the 'Journal of Botany.' In 1877 in conjunction with Mr. C. P. Hobkirk, F.L.S., Mr. Boswell drew up for the Botanical Record Club the first edition of the 'London Catalogue of Mosses,' based upon Jaeger's Arrangement; and this being exhausted, in 1881 a much fuller and more precise list followed, the Mosses herein being entirely the work of Mr. Boswell, who, however, to the end of his working career was rather a zealous student than a publishing professor able also to wield that sword of the ready writer—a goose's quill. Mr. Boswell's special quality was a kindly zeal which made him always ready, nay, even eager, to render assistance to others: as Charles Kingsley put it, 'Helping lame dogs over stiles'—and that *con amore*—made him an object of special veneration to the moss-mad tyro. The writer can speak feelingly on this point, although, after years of correspondence, he only met him, in Oxford, for the first and last time in 1883.

Space will not permit of any really adequate notice of a somewhat remarkable man, an Oxford city shopkeeper—he was a saddler—and yet so deeply imbrued in the spirit of its science and scholarship; and indeed we of the north knew of him rather as a staff for moss-students to lean upon in their weariness than as one whose writings concerned our group of North-English counties.

F. A. Lees.

Naturalist

A CRITICAL CATALOGUE OF LINCOLNSHIRE PLANTS:

FROM ALL KNOWN SOURCES.

REV. E. ADRIAN WOODRUFFE-PEACOCK, L.Th., F.L.S., F.G.S.,

Vicar of Cadney, Brigg; Organising and Botanical Secretary of the Lincolnshire Naturalists' Union.

TWELFTH PAPER.

See explanations given in the preceding papers, viz.:—

Nat., 1894, pp. 85-92, 133-130, 213-220, 257-263, 337-344. Nat., 1895, pp. 95-102, 289-301. **Nat., 1896, pp. 53-60, 181-188, 245-252, 309-316, 325-332.**

Clematis Vitalba L.† Certainly an alien. Divs. 1.2.3.6.8.11.12. 15.16.

Thalictrum dunense Dum.† Native. Divs. 4.9.11.

THALICTRUM COLLINUM Wallr. Native. Div. 8. Tathwell, 4.8.'91; J. Burtt Davy. He sent this specimen to the Herb. Brit. Mus., but I was not able to obtain a sight of it.

Thalictrum riparium Jord. Native. Div. 16. Cross Drain, South Drove Drain, 1883; W. H. Beeby. In his Herb. (Ar. B.).

Anemone Pulsatilla L.† Native. Divs. 2.13.14.15.

Adonis autumnalis L.† Alien. Divs. 2.13.15.

Myosurus minimus L.† Alien, I suppose. Divs. 12.17.

I have to thank my friend Mr. F. A. Lees for examining our Batrachian *Ranunculi* for me when he has been staying here.

Ranunculus circinatus Sibth.† Native. Divs. 1-4.6.9-11.13-16.

Ranunculus fluitans Lam.† Native. Divs. 10.12.

Ranunculus trichophyllus Chaix.† Native. Divs. 1.3.4.7.9. 11.15-17.

Ranunculus Drouetii Godr.† Native. Divs. 1-4.6-9.11.13.14. 16-18.

Ranunculus heterophyllus Web. ex p.† Native. Divs. 7.8.11. 12.13.17.

VAR. **submersus** Hiern. Native.† Divs. 7.8.10.12.

Ranunculus peltatus Schrank.† Native. Divs. 1.3.5.7.12-14.16.

VAR. *TRUNCATUS* Hiern. Native. Div. 7. Rasen neighbourhood, 1877-79; F. A. Lees.

VAR. **floribundus** Bab.† Native. Divs. 3-6.10.13.17.

VAR. **cæspitosus** Thuill.† Native. Divs. 2.3.5.12. This is but the mud-grown form of the last.

VAR. **penicillatus** Hiern.† Native. Divs. 3.6.8.13 (F. A. L.).
VAR. **elongatus** Hiern.† Native. Div. 13 (F. A. L.).
Ranunculus Baudotii Godr.† Native. Divs. 11.12.
VAR. **confusus** Godr.† Native. Divs. 9.11.12.
VAR. *MARINUS* Arrh. & Fr. Native. Div. 4.
Ranunculus hederaceus L.† Native. Divs. 6.7.10-13.
VAR. *OMIOPHYLLUS* Ten. Div. 7. Rasen neighbourhood, 1877.
'I thought I once saw this—the leaves being so crenated I took it at the time for *R. Lenormandi* F. Schultz'; F. A. Lees.
Ranunculus sardous Crantz.† Native. Divs. 3.4.6-9.11.
Ranunculus parviflorus L.† Native. Divs. 1.7.8.12.14.16.
Delphinium Ajacis Reichb.† Alien. Divs. 7(2).10(2).13.
D. consolida L., of the Britten-White *List*, 1872, is the old aggregate name.
Berberis vulgaris L.† Native, but often an escape. Divs. 1.2.5-8.10.11.14.15.
Papaver somniferum L.† Alien. Divs. 1.3.7.9.10.12.15.
Papaver Lecoqii Lamotte.† Native. Divs. 1.3.7.11.12.16.
Papaver hybridum L.† Alien. Divs. 1.2.13.
Glaucium flavum Crantz.† Native, I suppose. Divs. 4.9.11.
Neckeria bulbosa N. E. Br.† Alien. Divs. 3.11.14. 'Nat.' 1893, p. 326.
Neckeria lutea Scop.† Alien. Divs. 2.8.10.14.
Neckeria claviculata N. E. Br.† Native. Divs. 7.10.12.14.15.17
Fumaria muralis Sonder.† Alien. Div. 18. Near Gedney Station, 1896; Rev. W. Fowler (Ar. B.).
Barbarea intermedia Boreau.† Alien. Div. 8. Louth, 1896. F. A. Lees.
Arabis Turrita L.† Alien. Div. 13. Lincoln, by Fossdyke, 1896; Lees, Sneath and Peacock.
CARDAMINE AMARA L. This species, though often sought, has not been found. The late G. W. Browning, who died in a Government appointment at the Cape, took it in Div. 16 at Stamford, on the side of the Welland, near the waterfall, 1838. His brother, the Rev. Henry B. Browning, writes:—'I suppose it would be included in a series of water-colour paintings which he took to the Cape. Who got possession of these after his death I have no idea. I have sought it about the spot, which is a most likely one, but could not find it; and yet I hardly think Dodsworth and Browning could both mistake the species.'

Alyssum incanum L.† Alien. Divs. 7.8.14.
Cochlearia officinalis L.† Divs. 4.9.12.17.18.
Hesperis matronalis L.† Alien. Divs. 1.15.16.
Sisymbrium Thalianum J. Gay.† Native. Divs. 2.7.10.13-15.
Sisymbrium pannonicum Jacq.† Alien. Divs. 5.13.
Erysimum perfoliatum Crantz.† Alien. Div. 13. Lincoln, by Fossdyke, 1896; Lees, Sneath, and Peacock.
Camelina sativa Crantz.† Alien. Divs. 2.5.7.13.16.18.
Brassica Rutabaga DC.† Alien. Divs. 2.3.7.13.
Brassica sativa H. C. Wats.† Alien. Divs. 1-3.7.8.11.13.
Brassica sylvestris H. C. Wats.† Native, perhaps in Div. 7. Divs. 5.7.
Brassica Cheiranthus Vill.† Alien. Divs. 3.6.
Diplotaxis tenuifolia DC.† Alien. Divs. 3.13.14.
Lepidium ruderale L.† Alien. Div. 5. Kirton Station! 1895 (F. A. L.).
Lepidium sativum L.† Alien. Div. 14. Sleaford! 1895; J. S. Sneath.
Lepidium Draba L.† Alien. Divs. 1.3.5.8.10.13.16.

Crambe maritima L. I cannot help thinking this species has been recorded on the authority of Sir Joseph Banks, Turner and Dillwyn's *Bot. Guide*, 1805, as 'abundant on the sandhills of the Lincolnshire coast,' by a slip of the pen for *Cakile maritima*, which is abundant enough. There are no specimens at the Brit. Mus. or elsewhere as far as I can learn. It has never been recorded before or since, and the most accurate men make slips at times. Turner and Dillwyn recorded *Dianthus cæsius* Sm., instead of *D. glaucus* L., and they had only to copy direct from T. Martyn's *Plantæ Cantab.*, 1763 Martyn himself having written *glaucus* for *deltoides* in al probability.

Viola. I have to thank Mr. W. H. Beeby for kindly going through the *County Herbarium* collection of violets and bringing them into line with the 9th ed. of *The London Catalogue*.

Viola palustris L.† Native. Divs. 1.2.5-7.12-14.
Viola odorata L.† Native. Divs. 1-18.
f. **flore albo.** Divs. 2-4.7.8.10.11.14.
Viola hirta L.† Native. Divs. 2.3.5.7.8.10.11.13.14.16.
Viola sylvestris Reichb.† Native. Divs. 3.7.11.14.16.
Viola Riviniana Reichb.† Native. Divs. 1-3.5.7.8.10.11.13.16.17.
f. **flore albo.**† Div. 16.

May 1897.

Viola Riviniana × ericetorum.† Divs. 2.5.7.13.

Viola ericetorum Schrader.† Native. Divs. 1.2.5-8.10.11.13-15.

Viola ericetorum × stagnina.† Native. Div. 13. Skellingthorpe, 1896; Miss Rosa J. Owston (Ar. B.).

Viola stagnina Kit.† Native. Divs. 2.13(4). First brought to public notice by Dr. John Nicholson, of Lincoln, who sent a specimen to Sir W. J. Hooker. He recorded it in *The Annals of Nat. Hist.*, 1839, p. 383, remarking:—'Found at Boultham Lane on both sides of the road. In habit so unlike figure 445 of the 1st ed. of the *E. B.* (i.e. 176 of the 3rd *E. B.*) that it might be taken for a distinct species. Except at the base the stems are quite erect, and many of the specimens from a foot to eighteen inches high, with the leaves and peduncles very remote from each other, and many of the flowers apetalous. Reichenbach's *Icon. Bot.*, t. 99, however admirably represents this variety, only that the latter is much smaller, not above a span high. Its flowers are very pale blue, almost milk-coloured, otherwise it is hardly to be distinguished from some states of *V. montana* L.' He calls it *V. lactea* Sm. The late Professor C. C. Babington, *Bot. Gaz.*, 1850, p. 144, says '*V. stagnina*, Lincoln, Dr. Nicholson. Verified and right.' Dr. John Lowe, *Proc. Bot. Soc. Edinb.*, 1856, p. 13, records it again as *V. lactea*. But he wrote to me in 1894:—'I found it near Potterhanworth, *circa* 1852 or '53, in boggy ground. There can be little doubt it was *V. stagnina* of our present nomenclature, for I distinctly remember the thread-like rhizomes.' H. C. Watson's note in MSS. for the 1st ed. *Top. Bot.* at Herb. Brit. Mus. says:—'*V. montana* and *stricta* near *V. lactea*.' The late J. T. Syme, no doubt after studying the original Nicholsonian specimens at Kew, recorded it as *V. stagnina* Kit. in the 3rd *E. B.*, 1865. Mr. J. G. Baker kindly looked at the original specimens again for me; he wrote:—'They do not show the characteristic rhizome, but I have no doubt they belong to the *V. stagnina* forms.' This is also the carefully-considered opinion of such authorities as Mr. W. H. Beeby and Mr. Arthur Bennett. This species has grown or is growing on Manton Common in Div. 2, and at Boultham, Skellingthorpe, Potterhanworth, and Branston in Div. 13.

Frankenia laevis L. For this species the records are:—'First found at Tid-Goat, in the Isle of Ely, by Dr. Martyn.' Th. Martyn's *Plantæ Cantab.*, 1763, p. 8. T. Lyon's *Fasciculus Plant.*, 1763, p. 32. A. R. Relham's *Flora Cantab.*, 3rd ed.,

1820, says :—'Tid Goat, near Wisbeach.' Th. Martyn was most particularly hazy about topography. Tydd Gote, as the name is spelt on the last Ordnance Map, is miles north of the Isle of Ely, a border parish in South-East Lincolnshire. If he took his specimens on the North Lever Main Drain it was in all probability in Cambridgeshire, but may have been in Lincolnshire. If at the junction of this drain with the Nene or in the river below, certainly in Lincolnshire. If he took them in the Tydd Gote hamlet he was in Lincolnshire; if in Cambridgeshire he took them in Tydd St. Giles parish. Presumably it was on the then salt marshes of the Nene, which have long since been inclosed, and which were in Tydd Gote in Tydd St. Mary's Parish, Lincolnshire. The river Nene of 1763 being wholly in Cambridgeshire, the estuary in Lincolnshire. I have not the slightest doubt in my own mind that Mr. Skrimshire's records (R. Relhan's *Flora Cantab.*, 1802, pp. 103 and 327) for *Beta maritima* L., 'Below Wisbech,' and *Atriplex pedunculata* L., 'In the salt marshes,' both refer to the then salt marshes which are now certainly part of Tydd St. Mary's parish; though in the last case, 'By the river side a *little* below Wisbech' implies that this species was found in the then river, and so in Cambridgeshire, too. I understand the boundaries of the parishes and county were not accurately settled till 1831—changes of importance are now under consideration.

Saponaria vaccaria L.† Alien. Divs. 3.13.

Cerastium tetrandrum Curt.† Native. Divs. 4.9.12.

Cerastium alpinum L. After hunting fruitlessly through all the older Herbaria, I agree with Mr. F. A. Lees this was another mistake of T. Martyn's *Plantæ Cantab.*, 1763. The plant must have been *C. arvense* L., which is growing there now.

Stellaria nemorum L. Native. Divs. 2.7. Broughton Wood, 1856; Rev. W. Fowler, Herb. Brit. Mus. Damp wood at Tealby, 1877-79; F. A. Lees. I have also a note that it has been taken in Div. 13, at Fulbeck, but have seen no specimens.

Arenaria tenuifolia L.† Alien, I suppose. Divs. 3.13. In both cases on railways.

Arenaria serpyllifolia var. **leptoclados** Guss.† Native. Divs. 2.3.13.18.

Sagina maritima Don.† Native. Divs. 3.4.9.12.

Var. **debilis** Jord.† Div. 9. Mablethorpe, 8.94; H. Charman.

Sagina apetala L.† Native. Divs. 1.5.7.8.11-13.16.

VAR. **prostrata** Bab.† Divs. 5.11.13.

Buda marina Dum.† Native. Divs. 2-4.9.11.12.17.18. The fact recorded (*Nat.*, 1894, p. 140) about this species being found at Alford is a mistake, Mr. J. Burtt Davy tells me.

Claytonia perfoliata Donn.† Alien. Divs. 6.7.10.11.13. At Toft-Newton, in Div. 7, this species flourished in 1894, never appeared in 1895, but was much in evidence again in 1896: Rev. C. Wilkinson.

HYPERICUM ANDROSÆMUM L. This species was first recorded by the antiquary, Dr. W. Stukeley, in his *Itinerarium Curiosum*, 1724, p. 32, and reproduced in the Ward-Weir *List*, 1820. *Hypericum elatum* Ait. is the species, a mere garden escape, so the record is a mistake.

Hypericum montanum L.† Native, certainly. Div. 2. Broughton Woods, on the outcrop of Lincolnshire limestone, on spots widely apart.

Lavatera arborea L. A mere garden escape. Div. 11. Skegness, 1890; Mr. E. M. Browne's Herb.!

Geranium sanguineum L.† Native on limestone hills. Divs. 2.10.13.15.

Impatiens parviflora DC.† Alien. Divs. 10.15. *Nat.*, 1893, p. 327.

Medicago sylvestris Fr.† Native. Div. 13. Canwich, 1888, on old river gravel; J. S. Sneath.

Medicago denticulata Willd.† Alien casual in flour mill refuse. Div. 7. Market Rasen, 1879; W. Allen. Presented by Mr. J. Saunders to the Cty. Herb., 1896 (F. A. L.).

VAR. **apiculata** Willd.† Alien in flower garden soil. Div. 3. Howsham, 20.6.1895. Mrs. W. Booth.

Melilotus indica All.† Alien. Divs. 5.13.16.

Trifolium pratense L.† Native. Divs. 1-18. The var. **sativum** Schreb. is an impermanent agricultural escape. The var. **sylvestre** Syme is no doubt widely distributed, but I have only records for Divs. 1-4. The var. **perenne** G. Sinclair is found recorded in the *Hort. Gram. Woburn.*, pp. 221-2. He writes:—'In the fertile grazing lands between Wainfleet and Skegness, in Lincolnshire, this true perennial clover is abundant. The root is slightly creeping and extremely fibrous; in these points it differs essentially from the common broad-leaved clover' [of seedsmen the var. *sativum* Schreb. above], the roots of which are almost spindle-shaped. The common broad-leaved clover is of a lighter green colour, has fewer hairs on the stem and

leaves, and grows more upright. The botanical discriminating characters are less obvious, indeed not sufficient to make this plant more than a permanent variety of *Trifolium pratense* L. The sheaths are terminated with narrower and longer points, which are set with longer hairs. The flower-stalks, as shown in our figure, are in general longer and more slender, with an evident disposition to grow bent and flexuose. The heads of flowers are less crowded with florets, although, apparently to the sight, equally as large as the common cultivated clover' [*sativum*, above]. When young the flower head has the appearance of extreme woolliness or pubescence. Last summer—1824—when examining the rich grazing lands of Lincolnshire, I found this plant to be more prevalent than any other species of clover. In clayey districts, and in soils of a peaty nature, this species of clover was more conspicuous than in the alluvial soils.' This variety is found in Divs. 4.9.11. As if to make the most utter confusion possible seedsmen have stolen his name *perenne*, and applied it to *sativum*, and stolen the common name 'Cowgrass' from *T. medium* L. and applied it to *sativum*, too. I believe this variety is the only truly perennial form of *pratense* we have.

Trifolium ochroleucon Huds.† Native, but confined to Boulder Clay in Lincs. Divs. 4.11.12.15.

Trifolium resupinatum L.† Alien. Div. 13. Fossdyke, Lincoln, 1896; J. S. Sneath (F.A.L.).

Trifolium agrarium L.† Alien. Divs. 2.7.8.

Lotus corniculatus var. **villosus** Scr. Native. Div. 16. Bourne Wood, 1896; Miss S. C. Stow and in her Herb.

Lotus uliginosus var. **hirsutus** Syme.† Native. Divs. 3.7.

Vicia lutea L.† Alien. Divs. 12.13 (F.A.L.).

Vicia lævigata Sm.† Alien. Div. 13. Fossdyke, Lincoln, 1896; Lees, Sneath, and Peacock.

Vicia hybrida L.† Alien. Div. 13. Fossdyke, Lincoln, 1896; Lees, Sneath, and Peacock.

Lathyrus sylvestris L.† Alien. Divs. 5.11.13.15.

Lathyrus maritimus Bigel. 'I have seen *L. maritimus* in an herbarium, which was gathered at Ingoldmells or near it. Rev. J. H. Thompson,' in H. C. Watson's *MSS.* for 1st ed. *Top. Bot.* Brit. Mus.

Potentilla procumbens Sibth.† Native. Divs. 3.10.13.14.

Potentilla fruticosa L.† Alien. Div. 13. Near Scopwick Station, 1896; Rev. W. W. Mason, 436.

Poterium polygamum Walast.† Alien. Div. 8. Louth, 1896; Mr. F. A. Lees.

Pyrus torminalis Ehrh.† Native, perhaps, in Div. 16. Div. 7.16.

Pyrus Aria Sm.† Alien. Divs. 3.8.15.

Pyrus Pyraster L. Alien. Divs. 7.11. Several trees in road hedges, Walesby and Otby Hill, 1877-79; F. A. Lees. Well Woods, 1879; Dr. J. T. Burgess' *Paintings*.

Cratægus laciniata Wallr.† Divs. 3.7.

Cratægus kyrtostyla Fingerb. Div. 7. Rasen neighb., 1877-79; F. A. Lees.

Saxifraga punctata Don. Div. 15. Between Grantham and Harlaxton, where there was formerly an old toll bar. No doubt a survival of the garden. Mr. E. M. Browne's Herb.

Cotyledon umbilicus L.† Alien. Divs. 7.10.

Sedum Rhodiola DC. A mistake, which must be removed from our list. The species found at Appleby was *S. Telephium*.

Sedum Telephium L.† Native. Divs. 2(2).8.16.

Sedum teretifolium Haw.† Alien. Div. 15. Banks on the road-side of the hill going into Hough from Brandon, 1894; Miss S. C. Stow.

Sedum acre L.† Native, but often an escape. Divs. 2-13.15.16.

Sedum reflexum L. Alien escape. Divs. 2.10.12.15.17; Mr. E. M. Browne's *Herb.*

Callitriche hamulata Kütz.† Native. Divs. 5.16 (F.A.L.).

Epilobium hirsutum L., **flore albo.** This rare form recorded by Dr. P. Blair, *Phar.-Bot.*, 1723, p. 25, is still growing on the old spot, Div. 10, West Keal, on the Hagnaby road; J. T. Burgess.

Apium repens Koch.† Native. Div. 1. 'In a black peaty drain east of Epworth, called 'Black Dyke,' 1895; Rev. W. Fowler.

Cicuta virosa L. Native. The last certain record for this species was Div. 13, near Lincoln. Dr. John Lowe, *Proc. Bot. Soc. Edinburgh*, 1856, p. 13. It may be extinct now.

Myrrhis Odorata Scop.† Alien. Divs. 2.8.15.

Fœniculum vulgare Mill. This I find was recorded by Watson on Bogg's authority, but there was no specimen in the Bogg Herbarium. Britton-White *List*, 1872. H. C. Watson's *Top. Bot.*, 1873-74. It is a question of mismarking a list, I fear.

RECENT WORKS ON LAND AND FRESHWATER SHELLS.

The | Collector's Manual | of | British Land and Freshwater | Shells. | Containing Figures and Descriptions of every species, an | account of their Habits and Localities, Hints on | Preserving and Arranging, etc.; the Names | and Descriptions of all the Varieties | and Synoptical Tables showing | the Differences of Species | hard to Identify. | Also, with the permission of the Recorder and Referees, | The Conchological Society's Census of Comital Distribution | By | LIONEL ERNEST ADAMS, B.A. | Hon. Treasurer of the Conchological Society of Great Britain and Ireland. | Illustrated by | GERALD W. ADAMS, M.R.C.S., ALFD. SICH, F.E.S. | and the Author. | — | Second Edition. | — | Leeds: Taylor Brothers, | 1896. [Small 8vo, cloth, pp. iv + ii + 214 + 10 plates with explanatory leaves + xii pages of advertisements: Price 10/6 coloured, 8/6 plain].

A Label List | of | the Varieties of the British | Five-Banded Land Shells | with the Band Formulæ | for | Helix nemoralis and Helix hortensis | — | Price One Penny. | — | London: | Office of "Science-Gossip," 1, Northumberland Avenue, W.C. | Printed by the Nassau Steam Press, Limited, London. [By John T. Carrington; dated May 1896; 8vo, 12 pages].

Darlington | Naturalists' Field Club. | = | List of Land and Freshwater | Shells indigenous to Tees | Valley. | = | Compiled by | J. W. GELDARD & R. TAYLOR MANSON. | 1896. | — | Darlington: | The Northern Echo **Printing Works, Priestgate.—4860 [8 octavo leaves].**

THE close attention paid by students and collectors of late years to our Land and Freshwater Mollusca has resulted in the addition of several species to the British list, whilst the life-history, variation, and distribution of many of the more familiar species have been more or less thoroughly investigated, with the consequence that to-day this department of our fauna commands a greater share of popular attention than it has ever done before. Although such books as Jeffreys' 'British Conchology' and Rimmer's 'Land and Freshwater Shells of the British Isles' will always retain a hold upon the affection of conchologists, they can no longer be considered up to date. The altered conditions, together with inevitable changes in nomenclature, have created a demand for some work which, whilst being moderate in price, shall embody an account of the new species and more important varieties, and present the subject in a concise and readable form.

These requirements appear to be met by Mr. Adams' manual, which is the outcome of a wider and more varied experience in collecting than falls to the lot of most conchologists. In the introduction, the author not only tells us when and where to search for shells, but how to clean and prepare them for the cabinet when

found. The synoptical tables of the differences between the species of the more difficult genera, and the carefully-accentuated glossary of technical terms, cannot but be of the greatest service to the student, for whom the task of identifying any shell is facilitated by the excellent plates which supplement the description of the various species. The frontispiece, a reproduction of enlarged photographs of those bugbears of the tyro, the *Pisidia*, merits special praise. In addition to the clear and accurate descriptions of the shells, the manual abounds in the practical information about the appearance and habits of the creatures themselves, which is born only of keen observation and extensive work in the field.

On the vexed question of varieties, Mr. Adams, by recognising practically only those contained in the last list of the Conchological Society, steers a middle course between the 'splitters' and 'lumpers.' As each of the eighty-nine possible forms of plain banding in *Helix nemoralis* and *H. hortensis* (page 70) may be associated with some six or seven different ground colours, and as shells of each colour may be dextral or sinistral, and vary in size, shape, and texture, the field for the enthusiastic variety-monger is still vast indeed, even if he ignores split or interrupted bands, and variation in the colour of the lip.

Mr. Carrington apparently attaches an exaggerated importance to the bands, as his list of possible combinations is entirely without reference to the ground colour of the shells; and he errs in saying that the type in each species may be of any colour; indeed, in the list itself he differentiates such colour varieties as *rubella*, *castanea*, *lutea*, *lilacina*, etc., and many interesting problems in connection with these banded shells still await solution. Little is known of the degree in which the variations are inherited, the influence of environment upon the colour and banding, and the courses which determine the dominance of certain forms in some localities and the prodigal variety in others, but whether science is really served by the naming and cataloguing of minute variations, whether they actually exist or not, is very doubtful.

The authenticated records of the distribution of British land and freshwater mollusca included, by permission of the Recorder and Referees of the Conchological Society, in Mr. Adams' manual, are, though necessarily incomplete, of great value to students of geographical distribution. At the present time, when so much attention is being given to this subject by conchologists, the perusal of Messrs. Geldard and Manson's account of the Tees Valley mollusca can only result in a feeling of disappointment. The authors fail to state the limitations of the district they treat of, and

the list itself is a mere string of names. No localities being given, the reader has perforce to conjecture the precise habitat in the Tees basin of such forms as *Limax flavus*, *Helix pygmæa*, *fusca*, *lapicida*, *lamellata*, and *Limnæa stagnalis* var. *albida*, which are among the more interesting of the fifty-nine species enumerated. One looks in vain for such characteristic shells as the large, trochoid *H. arbustorum* and the extremely small *H. hortensis* which occur in many places between Croft Spa and Gainford, and *C. perversa* var. *dubia*, which is plentiful on both banks of the river between Piercebridge and Barnard Castle. The list is so manifestly incomplete as to be quite useless for purposes of comparison. Had the authors taken the trouble to consult Dixon and Watson's 'Descriptive Manual of British Land and Freshwater Shells,' which was published at Darlington in 1858, they would have found records of *Pisidium nitidum* (near Darlington), *Helix cantiana* (banks of the Tees), *H. granulata* (Middleton-One-Row), and *Cæcilioides acicula* (Rejectamenta of Tees, Middlesbrough). No mention is made of the following species, which have been recorded in 'The Naturalist' during the last twelve years:—*Arion subfuscus* (Middleton in-Teesdale), *A. minimus* (Rokeby), *A. circumscriptus* (Middleton-in-Teesdale), *Amalia gagates* and *A. sowerbyi* (Middlesbrough), *Limax marginatus* (Middleton-in-Teesdale and Rokeby), *Vitrina pellucida* (Rokeby), *Hyalinia pura* and *H. crystallina* (Rokeby), *Helix aculeata* (Barnard Castle), and *Balea perversa* (Rokeby). To these may be added *Hyalinia fulva* (Cleasby), *Sphærium lacustre* (Darlington), *Pisidium henslowanum* and *P. fontinale* (Cockerton), *P. fontinale* var. *cinerea* (Winston and Heighington), *P. pusillum* (Cockerton, Barnard Castle, and Hell-kettles near Darlington), and *P. milium* (Hell-kettles).—C. OLDHAM.

NOTE—ORNITHOLOGY.

Sanderling in Yorkshire in June.—I think the occurrence of one of these birds on the English coast in summer is sufficiently rare to be worth recording. A friend of mine when at Spurn on June 21st, 1893, saw a little brown bird running on the sands there, and succeeded in killing it, and he sent it to me the same day, in the flesh. It proved to be a fine male Sanderling (*Calidris arenaria*), in summer dress, and the specimen is now in my possession. Is it not very unusual for this species to be so far south as the British Isles so late in the season? It may appear irrelevant and trivial to add that when I was at Spurn on June 7th, 1893, my friend met me there and said he would show me a nest of four small eggs which he had found a few days previously on the sand among the bents. He described them as being much smaller than those of Ringed Plovers or Lesser Terns, darker, pointed at the small end. However, when we got to the place the eggs were gone and only the depression in the sand where they had been laid was to be seen. I may say my friend is well acquainted with sea and shore birds' eggs, but did not know what these were, and has never seen any like them before or since.—E. G. POTTER, 14, Boothman Crescent, York, March 10th, 1897.

THE RED DEER IN BRITAIN.

Red Deer | — | **Natural History** | By the Rev. H. A. MACPHERSON | **Deer-stalking** | By CAMERON OF LOCHIEL | **Stag-hunting** | By VISCOUNT EBRINGTON | **Cookery** | By ALEXANDER INNES SHAND | [wood block] Illustrations by J. CHARLTON and A. THORBURN | Longmans, Green and Co. | London, New York, and Bombay | 1896 | All rights reserved [Sic.] cloth, pp. x. + 320 + advertisements + 8 plates; Price 5s.]

IN this volume we have a most valuable continuation of the 'Fur and Feather Series,' and one which is every whit as interesting as its predecessors. Of the four parts into which it is divided, the first is the one which calls for notice at our hands. Full of interest to the gourmet as is the Cookery of Venison, Mr. Shand's recipes concern us not. Neither have we to deal with the noble sport of Deer-stalking as carried on in the Scottish Highlands, nor yet with the still nobler one of Stag-hunting in Devon and Somerset, as described by experts such as Cameron of Lochiel and Viscount Ebrington respectively.

In the first part the Rev. H. A. Macpherson gives us in three chapters what constitutes a useful little monograph on the Deer of Martindale Forest in Westmorland, which is the only part of the North of England where *Cervus elaphus* still roams in a free and wild state, and from which as a centre occasional stragglers visit the surrounding districts, even as in 1884 as far as the Swaledale hills. A few historical notes, and a graphic mention of other wild denizens of the district, such as the wild cat, the marten, the osprey, the foumart, the sea eagle, and the like, lend interest to the narrative. Mr. Macpherson also has notes on Deer in Skye, another district with which he is familiar, as well as general observations on the natural history of the species in general, and altogether his light and graceful treatment of the subject does much to render the volume an acceptable one to all readers, whether popular or scientific.

The illustrations, of which there are several, including eight full-page plates, are exceptionally clearly-printed process-blocks, and add considerably to the value and interest of the book, although it is not apparent whether they have any direct reference to particular portions of the text or not, such as, for instance, an actual representation of Deer in Martindale would have been.

NOTE—COLEOPTERA.

Carabus arvensis near Bradford.—On the 9th inst., Mr. F. Booth, of Saltaire, sent me for determination a living specimen of a beetle he had taken on Baildon Moor. On looking at it I was very pleased to find a beautiful male specimen of *Carabus arvensis*. It is a brilliant copper colour, a very nice contrast to the dark green female I have from Ingleborough, taken in April 1884, and the only other Yorkshire specimen I have ever seen.—J. W. CARTER, Bradford, April 14th, 1897.

VICIA LUTEA AND OTHER RARE PLANTS NEAR WORKINGTON, CUMBERLAND.

WILLIAM HODGSON, A.L.S.,

Workington.

About the middle of June last, I was one day taking a stroll along the left or southern bank of the River Derwent, about two miles above this town, when I noticed some peculiar looking vegetation upon a gravel-bed of considerable extent, which I resolved to examine. Quitting the path, and entering upon my task at the lower end of the gravel, the first plant that fell in my way was a very dwarfed specimen of *Vicia lutea*, a species heretofore of very rare occurrence in Cumberland, and not recognised as native here. The only records for the county, as far as my information extends, are confined to the following, viz., in the manuscript drawings of the late Mr. John Rooke, artist, of Whitehaven, now in the possession of Mr. J. C. Brown, J.P., of Hazel Holm, by whom they were purchased from Mr. Rooke's executors, is a figured example marked 'Keswick,' as indicating the locality where gathered. More recently specimens have been found on the ballast heaps at Silloth by Miss E. J. Glaister, of Skinburness House, Dr. Leitch, of Silloth, and I believe also by Rev. Hilderic Friend, formerly of Carlisle. These last were most likely sea-brought among grain cargoes, or from the sweepings of ships' holds. Proceeding farther along the gravel-bank, I observed from thirty to forty plants, all, with a solitary exception, stunted from exposure and want of sufficient nutriment. The next species observed, also very diminutive, were specimens of *Vicia faba* (bean), some in flower and others in fruit, confined in the case of the latter to a solitary pod. Few of these plants attained to a height of six inches, and one very dwarf example, with a single fully developed flower, is barely an inch high. Probably a dozen plants were observed.

Onward, yet higher up the bank, were flowering specimens of a *Lathyrus*, each bearing a solitary flower or seed pod. This lovely species I felt unequal to the task of identifying, and therefore the duty was entrusted to the skilled and experienced hands of Mr. J. G. Baker, of the Herbarium, Kew Gardens, who has most courteously assisted me in many a strait of a similar nature in byepast years. By him the species was identified

as *Lathyrus sphæricus*. The blossoms in form approach more closely to those of the pea than the ordinary vetchling, and are pale yellow of two different tints. Three or four specimens of *Lathyrus aphaca* grew in a corner, stunted like all the preceding. This species has rarely been found in our county, and generally about the coast.

About the centre of the gravel, where most elevated above the summer level of the river, grew some nice specimens of *Asperula arvensis*, which Hooker describes as 'a casual in cornfields.' More than forty years ago, in my earlier botanical experience, I had seen this species growing plentifully in a sandy cornfield on the banks of the little river Raugh (pronounced Roe), near my native village of Raughton Head, when I failed to establish its identity. As the field in question has since remained in pasture, this early puzzle remained without solution until some four or five years since, when, in company with Miss E. J. Glaister and her brother, we found a sandy patch of ballast at Silloth, covered with a fair crop of 'field woodruffe.'

Vicia varia, with weak straggling stems and very dark purple flowers, was in evidence all over the place. I was surprised, however, to find *Circæa alpina*, and, on a second visit, the more common *C. lutetiana*. These may have been brought down by the current of the river, as both species grow in great abundance on the lower slopes of Wythop Woods, along the edge of Bassenthwaite Lake. The most conspicuous plant of the group was a robust type of *Œnothera biennis* var. *grandiflora*, an escape probably from some garden higher up the river.

I must briefly describe the greatest find of the day. This was a plant nearly allied in appearance to the *Cerastium* group of plants. It grows about a foot high, of erect habit, stem branching sparingly and covered with dense short hairs. The flowers are axillary, each situated at the extremity of a very slender hair-like footstalk about an inch long. The flowers are rosy or light pink at the tips of the petals, toning down to white at the base. Mr. Baker describes it as follows:—'Looks like a *Cerastium*, but I have hunted for it in vain in that genus.'

A second visit about a fortnight later revealed more rarities, including *Melilotus parviflora*, *Caucalis daucoides*, *Scandix pecten-veneris* (the two last in seed), and an alien grass identified as *Ægilops triuncialis*, goat's face grass; according to Sinclair indigenous to Germany. I have seen it averred to be the origin of cultivated wheat. This is just possible, though not very probable. I once gathered a closely allied species, *Æ. ovata*, at Silloth, also a native of Germany.

Yet a little later I proceeded along the river, but on the northern or Camerton bank to another gravel-bed situated a short distance below the church, where I found all the vetches enumerated above, as well as fine forms of the unidentified plant already described, but in somewhat diminished quantity. At a third bank on the same side of the Derwent as the first mentioned, the vetches still occurred. This, the Clifton gravel-bed, yielded a plant not found on either of the others, and altogether new to me, *Caucalis latifolia*, a much more robust species than *C. daucoides*, having *purple* not *pink* flowers, as I expected to find. It is a lovely plant, described as 'very rare, cornfields, Somerset, Hertford, Cambridge; a colonist or alien' (Watson). Most of the plants included in the above list are common to all the three stations; the exceptions being that *Ægilops* is restricted to the first, and *C. latifolia* to the last or Clifton bed. How they originally came to such unlikely positions remains to be discovered. I have not so far had the opportunity of searching similar ground higher up the Derwent, and the late rains have so far affected the level of the stream as to render further investigation for the present season impossible.—Aug. 21st, 1896.

INSECT-FOES OF FRUIT-TREES.

Fruit-Culture | for Amateurs: | an illustrated practical handbook on the | Growing of Fruits in the Open | and under Glass. | By S. T. WRIGHT, | Superintendent of the Royal Horticultural Gardens, Chiswick. | — | with an | Appendix | on | Insect and other Pests injurious to Fruit-Trees: | their Life-Histories and the means used | to check their Increase. | By W. D. DRURY. | — | Fully illustrated. | — | London: | L. Upcott Gill, 170, Strand, W.C. | 1897 [Received 12th January, 1897; 8vo., cloth, pp. i-viii + 1-244 + 16 or more pages of advertisements; price 3s. 6d.].

THE book now before us is divisible into two parts nearly equal in size. The first, purely horticultural, does not concern us as a natural history journal. The second part, called 'Appendix,' and extending from pages 143 to 237, with the sub-title 'Insect and other Pests injurious to Fruit Trees, with their life-histories, and the means used to check their increase,' is a comprehensive sketch of economic entomology, illustrated by numerous figures. They are arranged alphabetically, dictionary fashion—each sketch including brief descriptions, with notes as to the ravages committed, and suggestions as to the best methods of combating them. The book itself is encased in a green cover sprinkled over with leaves of the autumnal or russet hue, and to the fruit grower will doubtless be found useful.

BRITISH CICADINA AND PSYLLINA.

The | Hemiptera-Homoptera | (Cicadina and Psyllina) | of the | British Islands | A Descriptive Account of the Families, Genera, and | Species Indigenous to Great Britain and Ireland | with notes as to Localities, Habitats, etc. | By | James Edwards, F.E.S. | London | L. Reeve and Co. | [2 lines of address] | 1896 [Received 12th January; 8vo. cloth, pp. i-viii + 1-271 + 2 plates with explanatory leaves + 16 pages of advertisements: price 12s.; Large paper Edition with 28 coloured plates, not seen, 43s. net].

The debt of gratitude which Messrs. Lovell Reeve & Co. have placed British entomologists under by the publication of their series of entomological monographs, already great, is added to considerably by the production of this addition to it. Inasmuch as the present work covers ground which has been previously unoccupied in Britain, its appearance is to be heartily welcomed, and it is most devoutly to be hoped that it will give a stimulus to new workers.

The number of species described is about 307, as compared with the 268 which Messrs. Douglas & Scott included in their catalogue of 1876. Four species are described as new, namely, *Liburnia thoulessi*, *Psylla concinna*, *P. brunneipennis*, and *P. venata*.

The species are treated of in much the same manner as in the other volumes of the same series; and there is the usual introduction, illustrated by a structural plate, in which the structure and habits, external and internal anatomy, economic importance, and methods of collection and preservation are briefly described or summarised—and this is followed by a table of families. Similar tables of the genera and species are given throughout the work.

The weak point, regretted in the introduction, is that of the record of localities, but this is not in any sense a fault of the book or of its accomplished author, being simply the result of the fact that there are very few students or collectors who pay attention to these particular groups in this country.

To conclude, British entomologists are to be congratulated on at last having such a work placed within their reach, and it is to be hoped that the encouragement it gives to study will be wide and far-reaching.

NOTE—REPTILES.

Blue-bellied Viper at Skipwith Common.—Mr. Councillor C. H. Wilson, of Leeds, has just presented to the Leeds Museum a very fine specimen, two feet long, of the Viper or Adder (*Vipera berus*), which answers to the description of the Blue-bellied Viper (*Coluber caeruleus* Shepp.), a very interesting variety with azure-blue ventral tints. The specimen was killed by a blow from a stick on Skipwith Common, five miles from Selby, on the morning of April 11th, 1897, when sunning itself among the heather. Three others were seen, one very black, but these escaped.—Henry Crowther, F.R.M.S., The Museum, Leeds, April 23rd, 1897.

PRESIDENT'S ADDRESS TO THE LINCOLNSHIRE NATURALISTS' UNION.

Rev. CANON W. W. FOWLER, M.A., F.L.S., F.E.S.

It is usual to estimate the success of any society or union of members, and it must be allowed that, although often misleading, the growth or decrease of the number of members affords a rough method, at all events, for judging of its prosperity and popularity. On December 31st, 1895, the Lincolnshire Naturalists' Union consisted of 76 members. During the present year 31 new members have joined, one has died, one has left the county. one has resigned, and the membership of three has lapsed owing to non-payment of subscriptions; this leaves the present number at 107 (including twelve life members), so that we show a net increase of nineteen. This, though of course satisfactory, cannot as yet be said to be an adequate representation of the people in this large county who are interested in natural history, and there is no doubt but that the membership might be very largely increased if each of the present members would endeavour to induce his friends to join the Union.

Our obituary is limited to one notice, but by the death of Lord Lilford we have lost an ornithologist of world-wide reputation, whose literary work is of the utmost value to science, and whose ability was only equalled by his kindness and generosity.

It is usually the custom in the addresses of the scientific societies to allude to any important works published during the year which relate to their especial subject, and it seems only right that in our Union we should make allusion to scientific works of any kind in which our members have taken part. We ought, therefore, to congratulate Miss Florence Woolward, of Belton, on the conclusion of her great work on the orchids of the genus *Masdevallia*, a group found only in Central and South America, chiefly in mountainous regions and often at a great elevation. The book is especially valuable for the large number of hand-coloured plates (eighty-seven) of the natural use of the plants, lithographed by Miss Woolward, and all drawn by her from nature, with the exception of seven species not known in Winton, of which drawings were sent to her by botanists residing in the country which is the habitat of the plants.

From the various reports which you have heard read you will have gathered a fair idea of the work taken in hand by the Union, and also of the work which it may be expected to accomplish in the future. The excursions to Grantham and neighbourhood, to Bourn, and to Great Cotes were well attended, and the best thanks of all the members are due to Mr. and Mrs. Cordeaux for their kind hospitality on the last occasion. These excursions, however, though most enjoyable, are rather pleasant meetings than opportunities for obtaining great results. This, I take it, is as it should be. The object of a Union like ours is to interest as large a number of people

as possible in natural history, geology, and kindred studies, and such an interest is far better promoted by friendly gatherings such as these, with a semi-scientific flavour about them, if we may use the term, than by insisting upon the Union being placed entirely upon a scientific basis. It is from the efforts of small bodies of specialists, or even of individuals, within the Union that real scientific results may be expected, and we certainly have excellent examples of these efforts in the geological excursions conducted by Mr. J. H. Cooke, which ought, however, to have been more largely attended; and in the formation of a Boulder Committee, with the Rev. W. Tuckwell as secretary; and, above all, in the formation of the nucleus of a County Museum.

The mention of the Museum brings me to what is, I feel sure, the most important part of my address. The great object which the Union ought to set before itself is the establishment of a Museum worthy of the traditions of the county. The present rooms, although hitherto they have excellently served their purpose, are fast becoming quite inadequate. There can be no doubt that there is a strong feeling in the county that such a Museum ought to be established, and we feel confident that its establishment is only a matter of time. Should not the Union, then, do all that it can to hasten it? It is a building that is chiefly required; as regards the endowment, it is very probable that considerable help might be given by the Technical Education Committee of the County Council; and it surely ought not to be difficult to raise £2,000 or £3,000 from the whole county, when we consider the large sum that was raised in Lincoln alone for the School of Science and Art. Over and over again we hear of the irreplaceable treasures that leave the county simply because there is no place to store them in for the public benefit, and if the Union does nothing more than help towards the providing of the much needed Museum, it will not have existed in vain. In this connection I should very much like to thank Mr. Fieldsend, in the name of the Union, for all he has done for our present collections.

On an occasion like the present it is usual for the President of a Union like ours not only to set forth the position and aims of the Union, and anything of interest in its history during the course of the past year, but also to say a few words on the particular subject in which he may himself have taken an interest.

Now, in considering the subject of this part of my address, I have felt very much at a loss, for it is, of course, right that it should, if possible, have some bearing upon the natural history, geology or archæology of Lincolnshire. I should hardly, however, venture to do more than merely touch upon the geology, botany, or ornithology of the county, in the presence of several leading authorities on these subjects; and with regard to the conchology and, more particularly, the entomology, I have made comparatively few observations, as the chief part of the time which I have felt I could legitimately devote to natural history, has been spent on the general subjects of the British coleoptera, and lately of the Central American homoptera; such observations, moreover, as I have been

able to make, have been mostly limited to the immediate neighbourhood of Lincoln. I feel convinced, however, that, in spite of the fact that many of the fen species have been doubtless effaced by drainage, the county will be found to be exceedingly rich in every branch of natural history, and it is to be hoped that, in the field of entomology, workers may be found who will emulate such ardent geologists as Mr. F. M. Burton and Mr. Cooke, such indefatigable botanists as Mr. Peacock and the Rev. W. Fowler, and such world-renowned ornithologists as Mr. Cordeaux.

If we consider the physical features of Lincolnshire we shall see that it ought certainly to contain a large and varied insect fauna, for it may roughly be divided into three districts, which are quite distinct in general character; to begin with, there is the large coast line, bounded by great sand-dunes, on which the low thicket of the buckthorn (*Rhamnus catharticus*) and coarse reeds and grasses give shelter to numerous good insects of various orders; in passing, we may notice that these dunes in summer are the haunt of the rare Natterjack Toad (*Bufo calamita*), which has been found by members of the Union on summer excursions to Mablethorpe and the surrounding district; in the second place there are large expanses of what was formerly fen country but now is mostly drained; there are, however, many occasional ponds and marshy corners, which, we may be sure, afford a last shelter to many of the fen species, especially the water insects; and, thirdly, there are the higher districts, often well wooded, which present every indication of an abundance of invertebrate life; the woods towards the west are apparently outlying remnants of the ancient Forest of Sherwood, which, besides containing many good lepidoptera, is the sole, or almost the sole, habitat of several of our rarest beetles; we might, perhaps, almost regard the banks of the Trent as a fourth district, for it has an insect fauna of its own; quite recently one of the least common species of British Carabidæ or ground-beetles, *Bembidium stomoides*, has been found in large numbers near Torksey Abbey by the Rev. A. Thornley, who has done a great deal of good work at the beetles of both Lincolnshire and Nottinghamshire.

If we look at a geological map of the county we shall find that the whole south-eastern portion, comprising nearly one-fourth of the county, is made up of drift or alluvial deposit; north of this, and running somewhat in a direction from N.W. to S.E. are two broad strips of Upper Oolite and chalk, separated by a narrow and irregular band of Lower Greensand; the western portion of the county is almost entirely taken up by three fairly regular strips consisting of Lias on the extreme west, then Lower Oolite and next Middle Oolite; it would be an interesting point to work out the distribution of the insect fauna of these divisions; in great measure, of course, it depends upon the flora, which undoubtedly varies with the geological formation, although Mr. Woodruffe-Peacock, who has made this subject peculiarly his own, says that the presence of humidity or dryness and the permeability or impermeability of the soil has more to do with the matter than chemistry.

At present the very local butterfly, *Hesperia paniscus* (the Chequered Skipper), appears to be confined to the Middle Oolite district, its range extending from Bourn on the south to the woods around Wickenby and Market Rasen and, perhaps, further north. Most probably this is accidental, but I have no record of its occurrence outside this narrow strip. The mention of the butterfly raises memories of many pleasant afternoons, when I have seen it flying up and down with its peculiarly glancing rapid flight in the glades of Newball Wood, near Wragby. I remember that when I first came to Lincoln I was introduced to its locality by Mr. Barber, of Lincoln (an excellent taxidermist and keen naturalist, who died quite young), and that there seemed to be a considerable probability of the butterfly being exterminated by dealers from Hull, who, with the retail price fixed at 8d. or 9d., were able to make a very fair profit out of a good day's collecting. We were, therefore, very pleased when Mr. Wordsworth, the courteous agent of Earl Manvers, closed the woods entirely to all except a limited number of legitimate naturalists, to whom cards of admission are issued each year on application; it is a great pity that the privilege cannot be extended in many other cases, but, as a rule, where woods and parks are entirely closed we shall find that too often the closure has been caused by abuse of privilege: either plants have been ruthlessly destroyed, or fences damaged, or gates left open, or game disturbed. A gamekeeper in Sherwood Forest once told me that a man had been going about with a butterfly-net and taking pheasant eggs all the time; what wonder then if the innocent suffer for the guilty. Were we the owners of property we should act in the same way in the face of wanton provocation. Even genuine collectors and observers are too often utterly careless. One of the best localities for beetles in the whole of the Midlands is entirely shut up now because someone who ought to have known better, threw away a match after lighting his pipe and fired the whole place. This, of course, is a digression, and in any case it is well that there are a large number of localities which are practically inaccessible. If all the habitats of our birds, insects, and flowers were open to everyone, the rarer species would soon become extinct, for nothing apparently can exceed the greed of the collector for gain, a personage who brings especial discredit upon the study of the lepidoptera, which are perhaps the most marketable of all natural history commodities. Of course, certain insects have become or are becoming extinct for reasons over which there is no control—notably the drainage of the Fen district. The great instance, perhaps, is the Large Copper Butterfly, which has not been seen for about fifty years, although there are several now living who can remember the insect as quite common in Yaxley and neighbouring Fens. A friend of mine, now far advanced in years, once bought a boxful for a halfpenny apiece, and now £7 is not an uncommon price for a good specimen. *Noctua subrosea* is another less known fen insect which has been extinguished by drainage, and *Orgyia cænosa* (the Reed Tussort) has comparatively recently disappeared:

Cleora viduaria (the Speckled Beauty) has, I believe, not occurred for many years in the New Forest; *Lycæna acis* (the Mazarine Blue) is already gone; and the two conspicuous butterflies, *Aporia crataegi* (the Black-veined White) and *Lycæna arion* (the Large Blue) appear to be in imminent danger of complete extinction; in one or two of these cases the destruction of the food plant by the burning of pasture or grazing of sheep may be the cause of the disappearance, but in others the numbers have certainly been much diminished by collectors, and a Committee has recently been appointed by the Council of the Entomological Society to enquire into the matter generally, and, if possible, to devise a plan by which some of the rapidly disappearing species may be yet preserved.

This, perhaps, may seem to have but little bearing upon the natural history of the county, but I have not much doubt that some of those now extinct insects were once common in the Lincolnshire fens; in fact, through Mr. Barber, whom I have before mentioned, I thought I had secured some evidence of the occurrence of the Large Copper in the county within the last twenty-five or thirty years, but on examining into it, it did not appear sufficiently trustworthy to found a record on. The Swallow-Tail Butterfly (*Papilio machaon*), the most conspicuous of all our British insects, ought certainly to occur in Lincolnshire, and I believe that it has been found, but I cannot come across any authentic record. This beautiful species will soon be exterminated from its chief haunt, Wicken Fen, but it will still linger in many inaccessible localities in the Norfolk Broads and smaller Cambridgeshire Fens such as Chippenham, where the larvæ have been found feeding on *Angelica sylvestris*. With regard to Butterflies undoubtedly occurring in the county, we have already alluded to *Hesperia paniscus*, and *Thecla betulæ* (the Brown Hair-streak) and *Apatura iris* (the Purple Emperor) are well worthy of record. A stray specimen of *Vanessa antiopa* (the Camberwell Beauty) has occurred this summer at Bracebridge, Lincoln. *Melitæa artemis* (the Greasy Fritillary) and *Meianagria galathea* (the Marbled White) are local but not uncommon. Of butterflies which occur abundantly in many other counties, *Gonepteryx rhamni* (the Brimstone) may be noticed as very rare, and of *Satyrus tithonus* (the Large Heath) only three specimens have, apparently, been taken. These were captured by the Rev. G. H. Raynor (from whom I have received some most valuable notes) at Panton, near Wragby, very occasionally. The Clouded Yellow (*Colias edusa*) is abundant, as it is in other parts of England. Of Moths we cannot here give any detailed list; but the common occurrence of the Death's Head Moth caterpillar during 1895 and 1896 may be noticed. Unfortunately a considerable number have been spoilt by the country people, who regard them as venomous serpents, and will only pick them up, more or less roughly, with tongs or other implements, the injury caused being sufficient to produce a crippled imago. The Convolvulus Hawk Moth (*Sphinx convolvuli*), the Large and Small Elephant Hawk Moth (*Chærocampa elpenor* and *C. porcellus*), and the Broad and Narrow-bordered Bee

Hawk Moths (*Macroglossa fuciformis* and *M. bombyliformis*) have been taken at Panton, and Newball and Legsby Woods; and among other things may be mentioned the Alder Moth (*Acronycta alni*), which used to be one of the rarest British moths, but is apparently not uncommon around Lincoln, and the Swallow Prominents (*Ptilodonta dictæa* and *P. dictæoides*), which have been found in the Lincoln and Market Rasen districts.

Amongst other orders of insects the Coleoptera, when really worked and properly catalogued, will be found to comprise a large number of good species. I could give a fair list of names, but will not burden this address with particulars that cannot be otherwise than uninteresting to any but enthusiastic beetle hunters. The county is evidently rich in Hymenoptera, and probably in Diptera.

For an agricultural county like Lincolnshire, however, the great interest of the Entomology lies in its economic considerations, such as the prevalence and spread of injurious insects, the effects on the crops, and possible remedies. For our increased knowledge of this subject we have much for which to thank Miss E. A. Ormerod, who has spared no pains or money to help combat these pests of the farmers, and I feel sure that all persons interested in her work will deeply sympathise with her in the loss of her sister and energetic fellow worker.

As a rule the subject of Economic Entomology is much neglected by farmers, although a few well-timed precautions will often save a large amount of trouble and money: in nothing is the old proverb more true that a stitch in time saves nine. In Lincolnshire, where the consideration of the best way to deal with insect pests (especially those that attack cereals) ought to be of paramount importance, the subject has hardly been taken up by anyone except Mr. Ralph Lowe, of Sleaford, and Mr. Eardley Mason, of Alford, who, some years ago, made observations in certain cases of attack which were of great interest. We are far behind the people of the United States in this matter. There a State Entomologist is appointed, whose periodic reports, in their style, fulness and excellent illustrations are models of what such reports should be. It is true that Miss Ormerod issues excellent yearly reports in her private capacity; but our official reports are, as a rule, meagre in the extreme, and our best entomologists have little or nothing to do with them. This is much to be deplored, for insect attack, more or less serious, is always present among us; occasionally there is a scare. We can most of us recall the excitement caused by what people thought to be the threatened invasion of the Colorado Potato Beetle. Its importation alive was strictly prohibited, the walls both in town and country were placarded with illustrations and notices of precautions to be taken if it arrived, and of course every harmless beetle was supposed to be a Colorado Beetle. This was but natural, as people who had never thought of a beetle before began to look out for them, and of course found and made notes of various species. The authorities of one important town seriously sent up to London an ordinary large 7-spot ladybird, feeling confident that at last the dreaded plague had

come and that they were the fortunate discoverers of its advent. Most of us, too, can remember the more recent scare concerning the Hessian Fly, how perpetual articles regarding it kept appearing in the papers, and how it was held up as the last straw that would break the farmer's back. But the fact is that the Hessian Fly is always among us : it is only on occasions (due to the climate of the season favouring its increase, or other causes which require careful investigation) that its attack becomes serious. There are, unfortunately, many other enemies of the corn crops whose attacks are, under favourable circumstances, quite as much to be feared as that of the Hessian Fly. Among them we may mention the Frit Fly (*Oscinis frit*), the Goat Fly (*Chlorops taeniopus*), the Wheat Butt Fly (*Hylemyia coarctata*), the Wheat Midge or 'Red Maggot' (*Cecidomyia tritici*), an insect closely allied to the Hessian Fly (*Cecidomyia destructor*), the Saddle Fly (*Diplosis equestris*), first discovered as British by Mr. Mason near Alford, the Corn Aphis (*Aphis* (*Siphonophara*) *granaria*), the Corn Sawfly (*Cephus pygmæus*), the Corn Thrips (*Thrips cerealium*), and last, but not least, the Wireworms, which are not worms at all, but the larvæ of certain beetles, and the two species of 'Eelworms' (*Tylenchus devastatrix* and *T. tritici*), which are true nematodes or threadworms, one attacking oats, rye and clover, and the other doing considerable damage at times to the wheat crops. This, it must be allowed, is a formidable list of pests, but fortunately they never appear to attack at once, and even in the same localities their ravages are sporadic ; one farm, for instance, may be ravaged by wireworms in one year and little harmed in the next, while on an adjoining farm the case may be just reversed. Evidently, then, there are many problems to be solved—problems requiring careful examination by skilled specialists, but likely to repay a hundredfold the cost of their solution. It is for this reason that we would ask for the appointment of a State Entomologist for Great Britain, whose duty it shall be to inspect any infected district, to report on any cases of disastrous infestation of which he has obtained knowledge, and to take such precautionary measures as he may deem requisite. May I give one instance of the extreme value of the researches of the American State Entomologist, Professor Riley, whose recent sad death by a fall from his bicycle is so much deplored by entomologists throughout the world. Some years ago the orange orchards of one of the orange-growing states were in danger of imminent destruction by a species of 'mealy bug' (*Icerya*) ; ruin stared the proprietors in the face until Professor Riley, who was investigating the infestation, found that a like species of 'mealy bug' was found in New Zealand, but did no appreciable harm there. On examining into matters he found that the pest was extensively preyed upon and so kept down by a small species of beetle belonging to the Lady-Bird tribe (*Vedalia cardinalis*), which closely resembles in size and colour our ordinary small red Lady-Bird. He therefore imported numbers of these insects to the infested American districts, and on being placed on the orange trees they grew and multiplied until they practically exterminated the 'mealy

bug' within a comparatively short space of time; in fact, it is said that a certain amount of the insect had to be cultivated, if we may so call it, in order to keep up the supply of the *Vedalia*.

I had at first intended to give some account of certain of the insect pests before referred to, but I find that I have already trespassed too much upon your time. As you have been kind enough to re-elect me as President for the year 1897, I may perhaps be allowed, if all be well, to continue the subject in my next presidential address.

I would conclude by again returning to the subject of the Museum, and expressing a strong hope that it may not be long before we obtain, through individual or collective generosity, a suitable building, and in that case I feel sure that we shall soon get together a collection of objects of interest which will be fully worthy of this large and important county of Lincolnshire.

NOTES AND NEWS.

A further commemoration of the 'fifty years of Science' of Dr. H. Clifton Sorby, F.R.S., whose investigations during that period have been so continuous, so valuable and rich in results, is to take the form of his portrait being painted, under the auspices of the Sheffield Literary and Philosophical Society. A fund has been opened for that purpose, of which Mr. Arnold T. Watson, of the Assay Office, Sheffield, is acting as treasurer.

Friends who knew Mr. Samuel Chadwick, F.G.S., when in England, and his indomitable energy, will not be surprised that he has already made his mark as a geologist in New Zealand, where he is settled at Ormondville, in the Hawke's Bay Province. Despite the fact that opportunities are more restricted than at home, he has already collected some thousands of specimens of various kinds, and he has considerably enriched the colonial museums with fossils from England as well as the colony.

We have received a second series of fossils from the Middle Eocene of Barton, Hants, from Mr. R. Charles, Highcliffe, Christchurch, Hants. The geologist who interests himself in Tertiary Geology finds but little scope in Yorkshire, where, saving the despised Drift, we have nothing of geological interest between the chalk and the moon, and he can but sigh for the happy hunting-grounds of the New Forest, with their rich fauna of the Eocenes and Oligocenes. We have already drawn attention to the excellent collections issued by Mr. Charles, and the 'Series 2' which lies before us deserves the same commendation that we bestowed on the earlier collection. Here are spoils of the tropical waters of the Barton period: Volutes and Rostellarias, Crassatellas and Tellins; ornately sculptured Pleurotomas in great variety, several species of the very characteristic Fusi, and an occasional high rarity such as a Bulla or good recognisable fragment of the great *Rostellaria ampla*. The generality of the fossils are things that one can get, no doubt, plentifully enough on the Hampshire coast, but even then there are difficulties of identification to be overcome. Mr. Charles' specific determinations are beyond cavil (though, by the way, he has dropped in a redundant *r* in 'Co(r)norbis'), and it may well be that the series will prove as useful to the amateur who *has* collected in the south as to him who has not. Mr. Charles is evidently a man of business, and keeps a register of specimens sent out so as to avoid duplicating species in successive consignments; he is, however, liberal enough of duplication or multiplication in the species sent in each batch. The collection now under notice comprises about 30 specimens, represented by quite 200 examples, all told. To the student who wishes to gain a clear conception of the richness and variety of the Lower Tertiary British fauna, we should strongly recommend the acquisition of these beautiful fossils.

Naturalist.

ON THE COLLECTION OF FRESHWATER ALGÆ.

W. WEST, F.L.S., AND G. S. WEST, A.R.C.S.

WHEREVER a place is kept permanently moist, Algæ will develop. They are found on damp rocks, walls, palings, shaded tree-trunks, spouts, rain-tubs, etc. They are met with again in all kinds of running water from the tumbling cataract and rapid torrent to the slow majestic river. In perfectly quiet waters they are most prolific, whether it be the tiny moor-pool or the expansive lake. Some even find shelter in symbiotic relationship with other plants, for instance, an *Anabæna* lives with the aquatic Lycopod *Azolla*, and another lives with the Hepatic *Blasia*, to say nothing of those associated with fungi to form the compound dual organism known as a lichen, or those symbiotically connected with such animals as *Hydra viridis* and certain species of *Amæba*.

Many of the larger Freshwater Algæ can be seen as green slimy masses floating on the surface of, or attached to, the sides of ponds, ditches, rivers, etc. Small tufts of these should be carefully collected in tubes or small bottles. Constantly dripping rocks yield quite characteristic species, and even shady moist rocks have an algal flora of their own. There can often be found on vertical moist rocks (especially limestone) coriaceous patches, or gelatinous masses, of a red, brown, green, bluish-green, or blackish colour; the algæ of which these masses consist are always most interesting. The green slimy masses even in brick-ponds and similar places are often of great interest.

But there are a large number of algæ, often the most beautiful ones, which are very minute, and the places wherein they abound are not usually obvious to an inexperienced eye; these forms are generally to be found about the stems and leaves of constantly submerged plants, such as *Utricularia minor*, *Myriophyllum*, *Nymphæa*, *Nuphar*, *Isoëtes*, *Potamogeton*, *Scirpus fluitans*, etc. Among Muscineæ, *Sphagnum contortum*, *S. plumosum*, *Hypnum scorpioides*, *H. exannulatum*, *Fontinalis*, etc., are usually richly clothed with some species. To collect from plants of this kind, the best way is to remove them (or portions of them) from the water with as little mud as possible, and allow them to drain a minute or so; they should then be gently squeezed over a wide-mouthed bottle, allowing the issuing water to collect in the bottle. The bottles should not be filled quite full, or in carriage the corks are liable to be forced out. We have known about a thimbleful of such a slimy squeezing

May 1897.

to yield more than a hundred (or even three hundred) species and many thousands of individuals. This is not the rule, however, as a similar squeezing from another locality might yield hardly more than one or two species, and these of the commonest.

These algæ should be examined when freshly gathered, if possible, as they are then in the living state; but if this is not convenient, they may be preserved by adding 6 grains of crystallised carbolic acid to each ounce of liquid, *or* by adding a few small pieces of camphor to the liquid. It is often convenient to preserve algæ for future examination, and in such a case it is better to preserve them in liquid than to dry them, because in soaking out dried algæ they very often do not re-attain their original form.

As we are at present at work on an Alga-flora of Yorkshire, which it is intended to complete this year, we shall be much indebted to any readers of 'The Naturalist' who will collect material for us, during the forthcoming spring and summer, from any of the following districts, some of which are at present totally unrepresented in our gatherings.

N. Riding.—Lower Wensleydale, Richmond, Northallerton, Thirsk, Cleveland district, Hawnby and district, Kirby Moorside, Pickering, and Castle Howard.

W. Riding.—Saddleworth, moors about Penistone and Sheffield, Hatfield Chase, and district south of Doncaster.

E. Riding.—Market Weighton (and district south of there), Pocklington, and Great Driffield.

Other districts of the county, such as the mountain limestone districts of the W. Riding, have been very well worked.

We have already some 800 species of Freshwater Algæ from the county, but being anxious to make the 'Flora' as complete as possible, we particularly wish for squeezings of submerged plants and small tufts of algæ from all available places. Needless to say, all help will be properly acknowledged. All gatherings to be addressed to W. West, 15, Horton Lane, Bradford.

NOTE—ORNITHOLOGY.

Flamborough Bird Notes.—Spring and Summer Visitants.—March 5th, Pied Wagtail (*Motacilla lugubris*); later on in March, Ring Ouzel (*Turdus torquatus*) and several Wheatears (*Saxicola œnanthe*). Speaking to one of the lighthouse keepers, he told me that on April 6th a Golden-crested Wren (*Regulus cristatus*) struck against the light. I also observed on April 10th the first Swallow (*Hirundo rustica*) that I have seen this season, which I think rather early. I have been upon the look-out for the Redstart (*Ruticilla phœnicurus*), but it has not made its appearance yet.—Matthew Bailey, Flamborough, April 20th, 1897.

Naturalist.

BIBLIOGRAPHY:

Papers and Records published with respect to the Natural History and Physical Features of the North of England.

HYMENOPTERA, 1890 to 1892.

The present instalment has been compiled and arranged by

WM. DENISON ROEBUCK, F.L.S.

The previous instalments of the Bibliography of Hymenoptera have appeared as follows :—

For 1884-1887, in 'Naturalist,' May 1888, pp. 153-155.
„ 1888-1889, „ Feb. 1890, pp. 39-42.

The counties and vice-counties of which cognizance is taken are the following, as named and numbered in the Watsonian scheme :—

53, Lincoln S. ; 54, Lincoln N. ; 56, Notts ; 57, Derby ; 58, Cheshire ; 59, Lancashire S. ; 60, Lancashire W. ; 61, York S.E. ; 62, York N.E. ; 63, York S.W. ; 64, York Mid W. ; 65, York N.W. ; 66, Durham ; 67, Northumberland S. ; 68, Cheviotland ; 69, Westmorland with Furness ; 70, Cumberland ; and 71, Isle of Man.

ANON. [various observers]. **Derbyshire.**

Calendar of Nature, 1879 [about Burton-on-Trent : *Vespa vulgaris*, *Apis*]. 4th Ann. Rep. Burton-on-Trent Nat. Hist. and Arch. Soc., **1880**, pp. 67-70.

ANON. [not signed]. **Northumberland S.**

List of . . Donations to the Museum [at Newcastle-on-Tyne] . . August 4th, **1887**, to August 10th, **1888** [*Sirex gigas*, Grey Street, Newcastle (R. Y. Green) and Whitfield, Sep. 1887 (Mrs. Blackett Ord)]. Nat. Hist. Trans. Northumb. Durh. and Newc., vol. 10, part 1, **1888**, p. 175.

ANON. [signed R.L.]. **Durham.**

Encounter between a Spider and a Wasp [at Durham, described ; specific names not given]. Field, June 9th, **1888**, p. 840.

ANON. [not signed]. **York N.E.**

Thirsk and District Naturalists' Society [*Sirex gigas* **shown by Leonard** Thompson, captured 17th Sep.]. Research, Oct. 1st, **1888**, p. 61.

ANON. [not signed]. **York N.E.**

List of . . Donations to the Museum [at Newcastle] . . from August 10th, **1888**, to July 1st, **1889** [*Sirex gigas*, Easingwold (W. E. Adams)]. Nat. Hist. Trans. Northumb. Durh. and Newc., vol. 10, part 2, 1890, p. 314.

ANON. [not signed]. **Isle of Man.**

Phenological Observations [in Isle of Man ; Red Ant (*Formica rubra*) appears, May 1st. ; Wasp (*Vespa vulgaris*, etc.), female, May 20th]. Yn Lioar Manninagh, April **1890**, pp. 161-162.

ANON. [not signed]. **Isle of Man.**

Phenological Observations [made in the Isle of Man ; dates given for *Sirex gigantea* (sic)]. Yn Lioar Manninagh, July 1890, p. 177.

ANON. [not signed]. **Furness.**

Singular Invasion by Ants [of the Monument on the Hill of Hoad, Ulverston, both this year and last, during thunderstorms ; the ants swept up and carried out by baskets full]. Land and Water, Sept. 10th, 1892, p. 289.

ANON. [not signed]. ? Furness.

Invasion of the Barrow Monument by Ants [is Annual, about mid-August, since 1850, when the monument was erecting]. Land and Water, Oct. 8th, 1892, p. 379.

E. G. ALDERSON. Notts.

Sirex gigas in Notts. [at Worksop, where it occurs regularly, and *S. juvencus* has occurred twice]. Ent., Oct. 1891, p. 248.

JOSEPH ANDERSON, jun. Durham.

Disparity of Size in Siricidæ [a female of *Sirex juvencus* taken at Hartlepool by J. E. Robson, 30th Sept., 1890, measured only 1¼ inches from tip to tip]. Ent., Dec. 1890, p. 384.

J. A[ITERBURY]. Derbyshire.

Calendar of Nature for 1882 [about Burton-on-Trent; *Apis* seen, Stapenhill, 11th Feb., *Vespa* sp., Bretby, April 2nd]. 7th Ann. Rep. Burton-on-Trent N.H. and Arch. Soc., year ending 31st March, 1883, p. 14.

R. H. BARKER. York N.E.

Sirex gigas [rather common among the fir woods near Hackness, Scarborough]. Field, Nov. 24th, 1888, p. 759.

I. BATALHA-REIS. Cheviotland.

Note on the Plants and Insects observed at the Wooler Meeting [Sept. 16th and 17th, 1887 : *Neuroterus lenticularis*, *Bombus lucorum*, *B. sylvarum*, *B. lapidarius*, *B. derhamellus*, and *Andrena afzeliella*? noted, with localities. Nat. Hist. Trans. Northumb. Durh. and Newc., vol. 10, part 1, 1888, p. 201.

G. C. BIGNELL. ? Durham.

Pimpla graminellæ [cocoons received from J. Gardner, of Hartlepool, who found them spun up in webs of *Orgyia antiqua*, presumably at Hartlepool]. E.M.M., May 1891, p. 131.

[T. R.] BILLUPS. Isle of Man.

[Exhibition of a series of *Trichoma erecator*, bred from Manx *Perona hastiana*]. South Lond. Ent. Soc., 9th Oct. 1890; Young Nat., Nov. 1890, p. 209.

[T. R.] BILLUPS. York Mid W.

[Opinion that *Aulax hieracii* Bouch. was the maker of galls on *Hieracium* collected near Leeds by W. Mansbridge]. South Lond. Ent. Soc., April 23rd, 1891; Ent., June 1891, p. 149.

T. R. BILLUPS. Yorkshire, Northumberland.

Nomada lateralis, Panz. [has Yorkshire and Newcastle assigned as localities by Edward Saunders]. E.M.M., July 1891, p. 196; and Ent., July 1891, p. 174.

G. W. BLYTHE. York N.E.

Do Humble Bees Swarm? [discussed from observations made at Oliver's Mount, Scarborough, on *Bombus terrestris*]. Zool., May 1890, p. 188.

HARRY B. BOOTH. York Mid W. or S.W.

Notes from West Yorkshire [anent occurrence of *Sirex gigas* abundantly in 1888 near Bradford]. Garner, Nov. 1st, 1888, p. 30.

J. BOWMAN. Durham.

Bees and Lime-trees [the destruction of bees accounted for; no place mentioned, but presumably Sunderland]. Sci. Goss., Feb. 1888, p. 43.

J. BOWMAN. Northumberland S.

The Wood Ants (*Formica rufa*) [and their habits, etc., as observed in woods near Morpeth, and in confinement; on p. 200 mentioned that Lady's Chapel Wood, or Bothal Wood, is the only one in the well-wooded vicinity of Morpeth where this Ant occurs; here, however, it is abundant; locality described]. Sci. Goss., Feb. 1889, pp. 32-34, fig. 19; and Sept. 1889, p. 200.

JOHN B. BRIDGMAN. **'Near Lincoln.'**

Further Additions to the Rev. T. A. Marshall's Catalogue of British Ichnenmonidæ [*Lissonota trochanterata* n.sp., described from a single female taken by Mr. Champion near Lincoln]. Trans. Ent. Soc. Lond., **1889**, part 3 (Oct.), p. 439.

WILLIAM BUCKLER. **Cheshire.**

The Larvæ | of the | British Butterflies | and | Moths. | By | (the late) | William Buckler, | edited by H. T. Stainton, F.R.S. | Vol. IV. | (The first portion of the Noctuæ.) | London: | Printed for the Ray Society. | — | MDCCCXCI. [8vo.; note of *Hydræcia micacea* sent July 1866 by Steele, and presumably taken at Congleton, infested with *Microgaster alvearius*].

Cheviotland, Northumberland S., Durham, Chesh., Lanc. S., Lake District, Lincs., I. of Man, Cumb., Notts, Derby, York Mid W., S.W. and N.E.

PETER CAMERON.

A Monograph | of the | British | Phytophagous Hymenoptera. | (Tenthredo, Sirex and Cynips, Linné.) | Vol. I. | By | Peter Cameron. | London: | Printed for the Ray Society. | — | MDCCCLXXXII. [8vo. cloth, pp. vii. + 340 + 21 plates with explanatory leaves; records given of *Tenthredo rufiventris* Pz., Newcastle (Bold), p. 82; *T. bicincta* L., Newcastle, Manchester, p. 92; *T. lateralis* Fab., Manchester, p. 100; *Tenthredopsis cordata* (Fourc.), Manchester, p. 104; *T. dorsivittata* Cam., a specimen from Manchester district, p. 116; *Pachyprotasis antennata* (Kl.), Manchester, p. 125; *Macrophya 12-punctata* (L.), common in Dunham Park, near Manchester, p. 129; *Dolerus vestigialis* Kl., taken at Dunham Park, Cheshire, p. 162; *D. coracinus* Kl., Manchester district (Chappell), p. 175; *D. anthracinus* Kl., a single specimen from near Manchester (Dunham Park), p. 175; *D. fissus* Htg., specimens seen from Manchester, York, p. 176; *D. megapterus* Cam., Manchester district, p. 177; *D. elongatus* Thoms., is found also in the North of England, p. 183; *Strongylogaster filicis* (Kl.), only seen a male taken by James Hardy at Wooler, Northumberland, p. 188; *S. delicatulus* (Fall.), an abundant Scotch and North of England species, p. 192; *Blennocampa sulcata* Cam. taken among roses at Holgate, York, by T. Wilson, p. 237; *B. micans* (Kl.), Manchester (Chappell), p. 238; *Hoplocampa testudinea* (Kl.), a specimen seen taken by Joseph Chappell in Manchester district, p. 259; *Harpiphorus lepidus* (Kl.), near Manchester (Joseph Chappell), p. 265; *Emphytus perla* Kl., captured by T. Wilson, near York, p. 282; *Heptamelus ochroleucus* (Steph.), North [East] Yorkshire (Marshall), p. 303; and *Athalia ancilla* Lep., Manchester, p. 307].

The same work, vol. II. . . . MDCCCLXXXV. [8vo. cloth, pp. vi. + 233 + 27 plates with explanatory leaves; records of *Dineura testaceipes* (Kl.), Northumberland, p. 16; *Nematus appendiculatus* Htg., found in Manchester district, York (T. Wilson), p. 68; *N. obductus* Htg., Newcastle (Bold), Manchester, p. 110; *N. conductus* Ruthe, specimens seen from Newcastle (Bold), Manchester, p. 112; *N. leucogaster* Htg., specimens seen from Manchester (Chappell), p. 113; *N. consobrinus* Vol., specimens seen from York and Lastingham (Rev. T. A. Marshall), p. 132; *N. myosotidis* (Fab.), Newcastle, Manchester, Yorkshire, p. 135; *N. abdominalis* (Pz.), near Newcastle (Bold), Manchester, Lastingham, p. 155; *N. bilineatus* (Kl.), York (F. G. Binnie), p. 157; *N. melanocephalus* Htg., seen from York (Binnie), p. 166; *N. arcticus* Thoms., one specimen taken by Joseph Chappell in Manchester district, p. 181; *N. leucostictus* Htg., seen from Manchester, p. 190; and *N. herbaceæ* Cam., found at Allonby in Cumberland by Inchbald, p. 207].

The same work, vol. III. . . . MDCCCXC. [8vo. cloth, pp. iv. + 274 + 17 plates with explanatory leaves; records of *Trichiosoma scalesii* Leach, Lake District (King), p. 22; *Amasis obscura* (Fab.), said to have been found in Lincolnshire, the only specimens Stephens had seen were in the British Museum, p. 46; *Lophyrus sertiferus* (Fourc.), Shernton, near Hartlepool, July 7th, 1885 (J. Gardner), details given, p. 82; *Xiphydria cameius* (L.), Newcastle, p. 130; *Figites anthomyiarum* Bouch., Cheshire, p. 162; *Kleidotoma pygmæa* Thoms., Scarborough (D. Sharp), p. 230; and *Phænoglyphis fortipennis* Cam., Lastingham (T. A. Marshall), p. 237].

A Monograph | of the | British | Phytophagous Hymenoptera. | (Cynipidæ and Appendix.) | Vol. IV. | By | Peter Cameron. | London: | Printed for the Ray Society, | — | MDCCCXCIII. [8vo. cloth, pp. iv.+248+19 plates with explanatory leaves; records of bedeguars of *Rhodites rosæ* (L.) used medicinally for cows by farmers near Harrogate, Ashmead, p. 41; *Aulax glechomæ* Htg., found in Isle of Man by Miss Constance Abrahall, p. 47; *A. scabiosæ* (Gir.), found at Tapley Pike near Buxton (Fitch), p. 52; *Andricus glandulæ* (Schenck), Lymm, Nottingham, p. 102; *A. solitarius* (Fourc.), Nottinghamshire (Rothera and Ransom), p. 104; *Tenthredo lachlaniana* Cam., taken at York (Wilson), p. 146; *T. olivacea* Kl., found at York by T. Wilson, p. 148; *Blennocampa sericans* (Htg.), taken by Wilson at York, p. 180; *Nematus fagi* Zadd., Sale, Cheshire, p. 197; *Eriocampa annulipes* (Kl.), injurious to beech hedges in Cheshire, p. 205; and *Andricus lucida* (Htg.), Whitley Woods, Yorkshire (Mosley), details given, p. 237].

P. CAMERON. **Isle of Man.**

Hymenopterological Notes [including one on *Aulax glechomæ*, Isle of Man, Miss Constance Abrahall]. E.M.M., Dec. 1890, p. 314.

P. CAMERON. **Cheshire.**

On the Galls of Mid-Cheshire . . Part First [enumerating with localities, and descriptions of the galls, those formed on the oak by *Andricus gemmæ* (*pilosus*), *A. radicis* (*trilineatus*), *A. sieboldi* (*testaceipes*), *A. cornifex* (*gemmatus*), *A. curvator* (*curvator*), *A. albopunctatus*, *A. globuli* (*inflator*), *A. solitarius*, *A. marginalis*, *A. glandulæ*, *A. quadrilineatus*, *A. ostreus*, *Cynips kollari*, *Trigonaspis megaptera* (*renum*), *Biorhiza aptera* (*terminalis*), *Dryophanta longiventris* (*similis*), *D. divisa* (*verrucosus*), *Neuroterus lenticularis* (*baccarum*), *N. fumipennis* (*tricolor*), *N. læviusculus* (*albipes*), *N. numismatis* (*vesicatrix*); after the systematic list is given a synopsis of the oak-galls]. Trans. and Ann. Rep. Manch. Microsc. Soc. for 1891, publ. 1892, pp. 65-72 and plate 4.

P. CAMERON. **Cheshire.**

On the Galls of Mid-Cheshire. | Part II. [noting host-plants and localities for *Diastrophus rubi*, *Rhodites rosæ*, *Periclistes caninæ*, *Rh. eglanteriæ*, *Rh. rosarum*, *Rh. spinosissimæ*, *Blennocampa pusilla*, *Nematus brevitarsis*, *Aulax hieracii*, *A. glechomæ*, *Nematus gallicola*, *N. bellus*, *N. saliciscinereæ*, *Euura pentandræ*, and *E. nigritarsis*]. Trans. and Ann. Rep. Manch. Microsc. Soc. for 1892, publ. **1893**, pp. 80-85, and plates 3 and 4.

H. SHORTRIDGE CLARKE. **Isle of Man.**

[Sirex gigas at Douglas, Isle of Man, mentioned in Report for 1890 of] Entomological Section [of Isle of Man N.H.S.]. Yn Lioar Manninagh, Ap.-Oct. 1891, p. 269.

T. D. A. COCKERELL. **Lanc. S.**

The Orchid and *Isosoma* [*orchidearum* (fam. Chalcididæ) at Southport, Lancs., t. E. A. Fitch, Trans. Ent. Soc. Lond., May 7th, **1884**]. Sci. Goss. July 1890, p. 164.

HILDERIC FRIEND. **Cumberland.**

The Life-History of Lophyrus pini [as observed in specimens infesting Scotch fir at High Blaithwaite near Wigton, Cumberland, July 1888; descriptions, figures, etc.]. Wesl. Nat., June **1889**, pp. 97-103, and litho plate.

HILDERIC FRIEND [not signed]. **Cumberland.**

Sirex gigas [noted as doing immense damage to Silver firs in a plantation at Gilgarrow, Cumberland]. Wesl. Nat., Oct. **1889**, p. 230.

HILDERIC FRIEND. **Cumberland.**

The Pine Destroyer (Hylurgus piniperda) [with footnote that writer has recently bred *Lophyrus rufus* in Carlisle]. Jn. of Microsc., Ap. 1890, p. 167.

Naturalist.

WILLOUGHBY GARDNER. **Cheshire.**

Astata stigma [male, and a Colony of Pompilus plumbeus at Wallasey, July 5th, 1891; the second record for this coast, first being near Southport, June 1879, by Benj. Cooke]. E.M.M., Jan. 1892, p. 23.

WILLOUGHBY GARDNER. **Cheshire, Lanc. S., York S.W.**

A Preliminary List of the Hymenoptera-Aculeata of Lancashire and Cheshire, with notes on the Habits of the Genera [enumerating *Formica rufa*, *F. fusca*, *Lasius fuliginosus*, *L. niger*, *L. umbratus*, *L. flavus*, *Ponera contracta*, *Leptothorax acervorum*, *Myrmica rubra*, races *ruginodis*, *lævinodis*, *scabrinodis* and *lobicornis* with Lancashire and Cheshire localities, and a Yorkshire one for *F. cunicularia*]. Brit. Nat., Jan. 1892, pp. 21-23; abstract in Ent. Rec., Jan. 15th, 1892, p. 23; and in Nat., May 1892, p. 150. [Localities for *Myrmosa melanocephala*, *Sapyga* 5-*punctata*, *Priocnemis exaltatus*, *Ceropales maculatus*, *Pompilus rufipes*, *P. niger*, *P. plumbeus*, *P. gibbus*, *P. pectinipes*, *Astata stigma*, *Trypoxylon figulus*, *Tachytes pectinipes*, *Ammophila sabulosa* and *A. hirsuta*]. Brit. Nat., Feb. 1892, pp. 30-32. [For *Diodontus minutus*, *Pemphredon lugubris*, *P. unicolor*, *P. lethifer*, *Mimesa unicolor*, *Psen pallipes*, *Nysson spinosus*, *Gorytes mystaceus*, *Mellinus arvensis*, *Cerceris arenaria*, *Crabro clavipes*, *C. leucostoma*, *C. podagricus*, *C. palmipes*, *C. elongatulus*, *C. dimidiatus*, *C. vagabundus*, *C. quadrimaculatus*, *C. cribrarius*, *C. pellarius*, *C. cephalotes*, *C. chrysostoma*, *C. interruptus*, *Oxybelus uniglumis*, and *O. mucronatus*]. Brit. Nat., May 1892, pp. 89-91. [For *Vespa crabro*, *V. vulgaris*, *V. germanica*, *V. rufa*, *V. sylvestris*, *V. norvegica*, *Odynerus spinipes*, *O. callosus*, *O. parietum*, *O. pictus*, *O. trimarginatus*, *O. trifasciatus*, *O. parietinus*, *O. sinuatus*, *Colletes succincta*, *C. fodiens*, *C. marginata*, *C. dæviesana*, and *C. cunicularia*]. Brit. Nat., June 1892, pp. 119-121. [For *Prosopis communis*, *P. signata*, *P. hyalinata*, *P. confusa*, *P. pictipes*, *Sphecodes gibbus*, *S. subquadratus*, *S. pilifrons*, *S. ephippius*, *Halictus rubicundus*, *H. leucozonius*, *H. lævigatus*, *H. cylindricus*, *H. albipes*, *H. villosulus*, *H. atricornis*, *H. minutus*, *H. nitidiusculus*, *H. minutissimus*, *H. tumulorum*, *H. smeathmannellus*, *H. morio*, and *H. leucopus*]. Brit. Nat., July 1892, pp. 145-147. [For *Andrena albicans*, *A. atriceps*, *A. trimmerana*, *A. cineraria*, *A. thoracica*, *A. nitida*, *A. fulva*, *A. clarkella*, *A. nigroænea*, *A. gwynana*, *A. angustior*, *A. varians*, *A. helvola*, *A. nigriceps*, *A. fulvicrus*, *A. albicrus*, *A. analis*, *A. humilis*, *A. labialis*, *A. nana*, *A. minutula*, *A. wilkella*, and *Dasypoda hirtipes*]. Brit. Nat., Aug. 1892, pp. 170-172. [For *Nomada solidaginis*, *N. sexfasciata*, *N. succincta*, *N. alternata*, *N. jacobeæ*, *N. lathburiana*, *N. lateralis*, *N. ruficornis*, *N. borealis*, *N. ochrostoma*, *N. ferruginata*, *N. fabriciana*, *N. furva*, *Epeolus productus*, *Coelioxys quadridentata*, *C. elongata*, and *C. acuminata*]. Brit. Nat., Sep. 1892, pp. 181-183. [For *Megachile maritima*, *M. willughbiella*, *M. circumcincta*, *M. centuncularis*, *Anthidium manicatum*, *Chelostoma florisomne*, *Osmia rufa*, *O. xanthomelana*, *O. cærulescens*, *O. fulviventris*, *O. aurulenta*, *Anthophora retusa*, *A. pilipes*, *A. furcata*, *Bombus cognatus*, *B. muscorum*, *B. latreillellus* and var. *distinguenda*, *B. hortorum* and vars. *subterranea* and *harrisella*, *B. pratorum*, *B. lapponicus*, *B. sylvarum*, *B. derhamellus*, *B. lapidarius*, and *B. terrestris*]. Brit. Nat., Oct. 1892, pp. 205-208. [For *Psithyrus rupestris*, *P. vestalis*, *P. barbutellus*, *P. campestris*, *P. quadricolor*, and *Apis mellifica*; paper concludes with statistical comparisons]. Brit. Nat., Dec. 1892, pp. 250-1.

C. F. GEORGE. **Linc. N.**

Sirex Juvencus [and its occurrence, also that of *S. gigas*, **at and near** Kirton-in-Lindsey]. Sci. Goss., Nov. **1886**, p. 259.

[C.] F. GEORGE. **Linc. N.**

Preponderance of the Female in *Sirex* [*gigas* **and** *S. juvencus*, **in North** Lincolnshire]. Nat., Ap. 1891, p. 124.

T. GIBBS, Junr. Derbyshire.

Calendar of Nature, 1883 [at Bretby near Burton-on-Trent; date given for Bee (*Apis mellifica*)]. 8th Ann. Rep. Burton-on-Trent N.H. and Arch. Soc., year ending 31st Dec. 1883, publ. **1884**, p. 22.

T. GIBBS, Junr. Derbyshire.

Calendar of Nature, 1888 [Bee (*Apis mellifica*) seen 15th April]. Ann. Rep., Burton-on-Trent N.H.S. for **1889**, p. 22.

THOMAS GIBBS. Derbyshire.

The Influence of Temperature on the Progress of Vegetation in the early months of the year [discussed, and table given, which includes the average, earliest and latest dates of observation of 'Bee' (*Apis mellifica*?), near Burton-on-Trent]. Trans. Burton-on-Trent Nat. Hist. and Arch. Soc., vol. 1, **1889**, p. 81.

A. E. HALL. ? York S.W.

[Apanteles glomeratus recorded as present in enormous quantity upon] *Pieris brassicæ* [presumably near Sheffield; figures given]. Brit. Nat., Jan. **1891**, p. 8.

C. C. HANSON. York S.W.

Sparrows Feeding on Larvæ [of *Nematus ribesii* at Greetland near Halifax]. Nat., July 1892, p. 215.

J. R. HARDY. Lanc. S., Cheshire.

Insecta [of Manchester District]. . . III. Hymenoptera Aculeata. Honey-making Bees [enumerated, with localities, in systematic order, to the number of 47 species, all Bees]. Handbook of Manchester, prepared by the Local Committee for the members of the British Association at the Manchester Meeting, **1887**, pp. 75-77.

JAMES HARDY. Cheviotland.

Report of the Meetings of the Berwickshire Naturalists' Club for 1889 [noting *Formica umbrata*, numerous hills about Brugh Law; also at Langleyford, and in Kidland-on-the-Alwen]. Proc. Berw. Nat. Club for **1889**, vol. 12, No. 3, pub. 1890, p. 446.

W. HEWETT. York N.E.

Sirex juvencus near York [one at Heslington, Sep. 2nd, 1891; it was common seventy years ago on the towers of York Minster, and known as 'The Minster Fly'; but entirely disappeared after the fire of Feb. 1829]. Ent., Oct. 1891, p. 248.

W. HEWETT. 'York.'

Sirex gigas at York [several within the past few weeks]. Ent., Oct. 1891, p. 248.

A. C. HORNER. Notts.

[Exhibition of several Holopedina polypori Först., from Sherwood Forest, taken with (and probably parasitic on) *Cis vestitus*]. Proc. Ent. Soc. Lond., July 6th, **1887**, p. xxxii; E.M.M., Aug. **1887**, p. 72; Ent., Aug. 1887, p. 215; Young Nat., Aug. **1887**, p. 160; and Zool., Aug. **1887**, p. 313.

P. M. C. K[ERMODE]. Isle of Man.

Phenological Observations [giving Manx dates for 'Red ant, *Formica rubra*,' and 'Wasp, female']. Yn Lioar Manninagh, Ap. 1889, p. 64-65: rep. Yn Lioar Manninagh, Ap.-Oct. 1891, pp. 292 and 294. [Manx date for *Apis mellifica*]. Yn Lioar Manninagh, Ap. 1892, p. 349.

T. A. MARSHALL. York N.E., S.W.

Monograph of British Braconidæ. Part II. [*Meteorus chrysophthalmus* Nees, found in Yorkshire by author (p. 96); *M. pallidus* Nees, a female found in the Yorkshire moors (p. 98); *M. atrator* Cur., three from Huddersfield, bred by Porritt (p. 110); *M. micropterus* Hal., Yorkshire moors near Scarborough (p. 113); *M. leviventris* Wesm., taken in

Naturalist,

Yorkshire by author (p. 127)]. Trans. Ent. Soc. Lond., **1887**, part 2 (June), pp. 96-127. [Same title]. Part III. [*Blacus paganus* Hal., male, from Lastingham, Yorkshire (p. 173); and *Diospilus capito* Nees, taken by author in Yorkshire (p. 204), are noted]. Trans. Ent. Soc. Lond., **1889**, part 2 (June), pp. 173 and 204. [Same title]. Part IV. [with notes for 'Yorkshire' of female *Opius truncatus* Wesm., and *O. reconditor* Wesm.]. Trans. Ent. Soc. Lond., March 1891, pp. 44 and 46.

Linc. N.

JAS. EARDLEY MASON.

Sirex juvencus near Alford, Lincs. [at Tothill, a female 18th Sept. 1889]. Nat., March 1890, p. 94.

? Derbyshire.

P. B. MASON.

[Exhibition of the South European *Crematogaster scutellaris* **Oliv., from** Mr. Baxter's fernery at Burton-on-Trent]. Proc. Ent. Soc. Lond., June 5th, **1889**, p. xxiii.; rep. Zool., July **1889**, p. 276.

York S.W.

S. L. MOSLEY.

[Galls observed by] The Yorkshire Naturalists' Union at Bretton Park [14th June, 1890; galls of *Andricus terminalis* and *A. radicis* noted]. Nat., Aug. 1890, p. 225.

York S.W.

S. L. MOSLEY.

Yorkshire Galls [enumerated, in botanical order, including those caused by *Biorhiza aptera*, *Aphilothrix radicis*, *Neuroterus numismatis*, *N. lenticularis*, *Dryophanta scutellaris*, *Spathegaster baccarum*, *Andricus curvator*, *Dryophanta devisa*, *Aphilothrix gemmæ*, *Andricus terminalis*, *Cynips kollari*, *Trigonaspis megaptera*, *Rhodites rosæ*, *R. eglanteriæ*, *Nematus gallicola*, and *N. salicis-cinereæ*; localities occasionally given]. Nat., Sept. 1892, 273-276.

York S.W. and S.E.

S. L. MOSLEY.

Additional Yorkshire Galls [and their Makers; *Nematus* **at Spurn;** *Eurytoma hyalipennis*, no locality; *Aphilothrix lucida* in Whitley Woods; *Biorhiza renum* at Woodsome and Honley Woods; *Rhodites spinosissimæ*, no locality; *R. rosarum* at Shepley; and *Diastrophus rubi*, no locality.] **Nat., Nov. 1892, pp. 337-338.**

Westmorland.

G. W. M[URDOCH].

Early Swarm of Bees [(*Apis mellifica*) **at Levens, near Kendal, on** 16th April, 1890]. Field, May 31st, 1890, p. 811.

York Mid W.

HARRY NELSON.

Sirex gigas at Crossgates [near Leeds, 15th Sept., 1892]. Nat., Nov. 1892, p. 325.

Cheshire.

R. NEWSTEAD.

The Cheshire Plague of Caterpillars [of *Nematus ribesii* **Curt., which** committed great devastation in one district]. Ent., Jan. 1891, p. 19.

Cheshire.

R. NEWSTEAD.

Insects, &c., taken in the Nests of British Vespidæ [*Vespa germanica*, *V. vulgaris* mentioned with Cheshire localities; an undetermined species of *Proctotrupes* also noted]. E.M.M., Feb. 1891, pp. 39-41; bibl. note in Ent. Record, Feb. 16th, 1891, p. 307.

Cheshire.

R. NEWSTEAD.

A query as to the food of certain Dipterous larvæ found in nests of Vespidæ [in Cheshire, etc.; a note—unlocalized—on a nest of *Bombus muscorum* infested by *Homalomyia canicularis*]. E.M.M., Mch. 1891, p. 78.

? Cheshire.

R. NEWSTEAD.

Red-tailed Bumble Bees eaten by Shrikes [in the Minera district last year, *Lanius collurio* was feeding its young with *Bombus lapponicus* Fab., *B. lapidarius* L., and *B. muscorum* L.] Ent., Aug. 1891, p. 193.

Derbyshire.

J. E. NOWERS [Sec.].

Comparative Calendar of Nature [for 1878 and 1879, about Burton-on-Trent; dates given for *Apis mellifica* and *Vespa vulgaris*]. 4th Ann. Rep. Burton-on-Trent Nat. Hist. and Arch. Soc., **1880**, p. 71.

J. E. NOWERS. **Derbyshire.**

Calendar of Nature, 1886 [for Burton-on-Trent; Bees (? *Apis mellifica*) seen at Burton, 20th March, Wasp (*Vespa*, sp. not stated) seen, Ashby Road, 5th May]. 11th Ann. Rep. Burton-on-Trent N. H. and Arch. Soc., for 1886, publ. **1887**, pp. 22-23.

DOUGLAS H. PEARSON. **Notts.**

Sirex juvencus in Notts [one at Chilwell, Oct. 8th; *S. gigas* **common** there]. Ent., Nov. 1892, p. 291.

G. H. PHILIPSON. **York N.W.**

Address to . . the Tyneside Naturalists' Field Club, read . . 19th May, 1885 [*Sirex gigas* noted as taken at Jervaulx, summer of 1884]. Nat. Hist. Trans. Northumb. Durh. and Newc., vol. 8, part 2, **1886**, p. 288.

CHARLES ROBSON [not signed]. **Northumberland S.**

Natural History Jottings. On Wasps, chiefly [the notes made in Northumberland, at Harnham, Bradford, etc., concern *Bombus muscorum*, *B. lapidarius*, *B. terrestris*, *Vespa vulgaris*, *V. rufa*, *V. sylvestris*, *V. germanica*, in great wealth of detail]. Sci. Goss., Jan. **1885**, pp. 15-17.

CHARLES ROBSON. **Northumberland S., Durham.**

Scarcity of Wasps (Vespæ) [at Newcastle-on-Tyne or at Birtley, Durham; date of appearance of *Vespa rufa* and *V. sylvestris*]. Sci. Goss., Nov. 1890, p. 263.

W. DENISON ROEBUCK. **York N.E.**

Sirex juvencus at Pickering [July 18th, 1890, found by W. Fletcher in a box of toys]. Nat., Nov. 1892, p. 325.

W. H. ST. QUINTIN. **York S.E.**

Sawfly larvæ [Lobophorus pini] attacking [Scotch] Firs [committing great damage in a 40-acre plantation, presumably at Scampston Hall]. Field, June 29th, **1889**, p. 926.

J. H. SALTER and N. NEAVE. **Lanc. S.**

Manchester [Phenological] Notes [16th March, *Apis mellifica* **first seen]** N.H.J., April 15th, 1890, p. 56.

RICHARD SOUTH. **Durham.**

Sirex gigas in Durham [one at High Force, 8th August, and one in Bishop Auckland, 11th August, 1890]. Ent., Sep. 1890, p. 292.

R. A. SUMMERFIELD. **York Mid W.**

Sirex juvencus near Ripon [a female at North Stainley, 17th Sep., 1892]. Nat., Nov. 1892, p. 325.

C. F. THORNEWILL. **Derbyshire.**

Calendar of Nature, 1886 [Female Wasps (*Vespa***, sp. not stated)** killed April 24th]. 11th Ann. Rep. Burton-on-Trent, N.H. and Arch. Soc., for 1886, pub. **1887**, p. 23.

EDGAR R. WAITE. **York Mid W., S.E., N.E., N.W., and S.W.**

Sirex juvencus at Adel [a female obtained 30th Sep., 1891; *S. gigas* numerous about Leeds; *S. juvencus* has also been recorded for Northallerton, Harrogate, Huddersfield, and Hull]. Nat., Jan. 1892, p. 15.

H. B. WILSON. **York Mid. W.**

Sirex juvencus in Leeds [a female, 22nd Aug., 1892]. Nat., Nov. 1892, p. 325.

W. H. YOUDALE. **Cumberland.**

Silloth in August [1891; a botanical article, with mention of *Rhodix spinosissima*]. Sci. Goss., Jan. 1892, p. 14.

JOHN M. YOUNG. **York S.W.**

Larvæ of Triphæna fimbria [near Rotherham; infested by *Campoplex mixtus* Grav.; fide T. R. Billups]. Ent., Aug. 1890, p. 263.

A CRITICAL CATALOGUE OF LINCOLNSHIRE PLANTS:

FROM ALL KNOWN SOURCES.

REV. E. ADRIAN WOODRUFFE-PEACOCK, L.Th., F.L.S., F.G.S.,
Vicar of Cadney, Brigg; Organising and Botanical Secretary of the Lincolnshire Naturalists' Union.

THIRTEENTH PAPER.

See explanations given in the preceding papers, viz. :—

Nat., 1894, pp. 85-92, 133-130, 213-220, 257-263, 337-344. Nat., 1895, pp. 95-102, 289-301. Nat., 1896, pp. 53-60, 181-188, 245-252, 309-316, 325-332. Nat., 1897, pp. 133-140.

CRITHMUM MARITIMUM L. A mistake of Dr. William Stukeley's—he was an antiquary and no botanist. His *Itin. Cure.*, 1724, p. 32, says :—'*C. maritimum*, of which we may expect a good account from Dr. Blair, of Boston.' He was referring to *Salicornia herbacea* L., called 'Samphire' in Lincolnshire. His mistake was copied by the Thompsonian *List* writers, and has been ever since.

ŒNANTHE PIMPINELLOIDES L. Recorded by L. Plukenet, 1685-8, in Brit. Mus. copy of J. Ray's *Catalogus*, 1670 (Press Mark, 968, f. 2). It was an aggregate name including *Œ. Lachenalii* C. Gmel., in his day. He saw this latter species growing at Whaplode, near Spalding—it is growing there now—and named it rightly enough at the time. He was a botanist. His MS. note on *Inula Helenium* L. settles the question of locality.

ŒNANTHE PEUCEDANIFOLIA Poll. (i.e. *Œ. silaifolia* Bieberstein). Div. 17. Near Quadring, Spalding, *circa* 1837-8; Dr. Richard Deakin, in *Florigraphia Britannica.* See note on *Œ. pimpinelloides* L., just above. It looks as if this were but another rendering of L. Plukenet's MS. note, without acknowledgment.

Œnanthe Lachenalii C. Gmel.† Native. Divs. 1.5.6.8.9.11-13. 17.18.

Œnanthe crocata L.† Native, but rare. Divs. 6.10.13.15.

Œnanthe fluviatilis Coleman.† Native. Divs. 14.16.17. (Ar. B. & F.A.L.)

Selinum Carvifolia L.† Native, without doubt. Div. 2.

Caucalis daucoides L.† Alien. Divs. 13.14.16. This is the *C. leptophylla* of Hudson, not Linnæus, that T. J. Woodward considered his Carlby specimen to be. See P. Miller's *Gardeners' and Botanists' Dict.*, 1797, under *C. daucoides.*

Caucalis arvensis Huds.† Native. Divs. 12.14.16.18. I have records for other northern Divs., but no proof specimens.

Lonicera Xylosteum L.† Alien. Bird-sown? Div. 15. Belton 1896; Miss F. H. Woolward.

GALIUM ERECTUM Huds. This name must be removed from our Lincolnshire *List.* I followed the 3rd *E. B.* too closely, I fear, without regarding the nomenclature of the 8th ed. of the *London Cat.* All our specimens must be classed under the species *G. mollugo* L. for the present. We all make mistakes.

Galium mollugo L.† Native, rare and local. Divs. 2.8.10.13.15.16.

Galium tricorne Stokes.† Alien.† Divs. 5.6.7.13.

Asperula cynanchica L.† Native. Divs. 1.13-16.

Asperula arvensis L.† Alien. Div. 13. Lincoln, by Fossdyke, 1896; Messrs. Lees, Sneath and Peacock.

Anthemis tinctoria L.† Alien. Divs. 2.13.

Artemisia Absinthium L.† Alien. Divs. 7.9.10.12.16.

Artemisia maritima L.† Native. Divs. 4.9.11.12.17.18.

VAR. **gallica** Willd.† Native. Divs. 4.12.17.

Petasites albus Gærtn.† A planted alien. Div. 2.

SENECIO SQUALIDUS L. Alien. Div. 14. Anwick, 1855; Dr. John Lowe in *Proc. Bot. Soc. Edinburgh*, 1856, p. 13.

Senecio paludosus L.† Native, but quite extinct now. I find it was on the Rev. H. J. Wollaston's authority that this species was recorded for Brayford Water, Div. 6 or 13, or both. See P. Miller's *Dictionary*, 1797.

Arctium intermedium Lange.† Native. Divs. 2.11.14.16.

Carduus pycnocephalus L.† Alien. Div. 6. Lincoln, 1892; Rev. R. W. Goodall.

VAR. **tenuifolius** Curt.† Alien. Div. 4. Sandy ground south of Cleethorpes, 8.1892; F. A. Lees.

Cnicus palustris × pratensis.† Native. Div. 7. Linwood Warren, 1877; F. A. Lees.

Cnicus oleraceus L. Alien. Div. 16. By the side of the road between Market Deeping and Croyland, before 1816; Mr. Oldham. Again found there by the late Mr. Cole, of Bourne, about 1823. There were specimens in the Herbaria of the late Mrs. M. Stovin, of Ashgate, near Chesterfield, and the late Mr. Edward Edwards, who helped the late R. A. Pryor with his *Flora of Herts.*

Crepis taraxacifolia Thuill.† Alien? Divs. 7.9.15.

Hypochæris maculata L.† Native. Div. 13. Highdyke, Leadenham, 1896; Peacock. 'A very interesting addition to the County Flora. Your specimen is like those from Essex, Cambridge, Suffolk, and Northampton. The Cornish, Carnarvon, Westmorland (Lake Lancashire) being much more luxuriant and generally with two or three heads.'—Ar. B.

Sonchus palustris L. Native, but extinct now. Div. 12. A. Young's notice (*Lincs. Agric.*, 1799, p. 232) seems to have been the first and last record for this species. As we have *Senecio palustris* DC. in his *List* too, he can hardly have made a mistake. There is no specimen at the Brit. Mus. from the Banks' Herb., and I cannot find one elsewhere.

Hypopitys monotropa Crantz. Native, if with us still. Div. 6. Close to Summer Castle, Fillingham, in fir wood. Rev. J. Dalton in *Bot. Guide*, 1805. His collection of plants is in the York Museum. 'I find in our Herbarium three sets of specimens of *H. monotropa*. Two have no locality, the third is marked 'Studley Woods.'—H. M. Platnauer, Curator of York Museum. 'I must tell you that I believe the fir-wood where these rare plants grew was cut down in 1840, and is now ploughed land.'—Mrs. Portman-Dalton, by letter, 11.3.1895.

Primula acaulis × veris.† Divs. 1.2.5.7.8.10.11.13.15-17.

Lysimachia thyrsiflora Ait. Divs. 1.12 or 17. Boston, Lincolnshire, 1842; R. Kippist and J. Woods. Specimen in Herb. Brit. Mus.

Lysimachia punctata L.† Alien. Div. 8. Redhill, Louth, an escape from a garden near, 8.1892; J. Larder.

Lysimachia ciliata L. Planted alien, I believe. Div. 3. Brocklesby Woods, 10.8.'49; Dr. B. Carrington. In the Herb. Royal Bot. Gard. Edinburgh. 'In the handwriting of Dr. B. C.'—T. B. Balfour. 'Naturalised.'—Dr. B. C. in *Bot. Gaz.*, 1849, p. 323.

Centunculus minimus L.† Native. Div. 7. Sandy lane between Osgodby and Middle Rasen, along with *Radiola*, *Cerastium semidecandrum*, etc. Seen first 22.7.'77, again 23.7.'78; F. A. Lees.

Limnanthemum peltatum Gmel.† Div. 15. Syston Lake. 'This species appeared in the lake at Syston some 10 to 15 years ago. It must have been brought there by one of the wild fowl which frequent the water, as I do not know of any spot where it grows in this district. The single plant first observed has spread all over the shallow portion of the lake, and has

become a nuisance; luckily it cannot grow in deep water.'—Sir John H. Thorold, Bart., by letter, 19.3.96. But another suggestion of the way it may have been carried to Syston has been hazarded. 'Cattle are greedily fond of this plant. I have seen them at Syston up to the shoulders in mud and water, regardless of danger, and only intent on devouring every scrap within reach. There is also no *Limnanthemum* on any pond at Belton close by. This goes against the bird-sown theory, as there is a constant interchange of waterfowl between the Belton and Syston waters.'—Miss F. H. Woolward.

Myosotis strigulosa Mert. & Koch.† Native. Divs. 1.2.6.7. (F.A.L.).

Mentha vulgaris Sole. Native. Div. 7. By clayey ponds in fields by the highroad between Rasen and Nettleton; F. A. Lees. *B. R. C.*, 1877, p. 219. The specimen—a poor one—in the Brit. Mus. Herb. was passed by the late Prof. Babington.

Salvia pratensis L.† Alien, brought with foreign grass seed. Divs. 11.15.

Stachys germanica L. There is a good specimen at Kew in Dawson Turner's Herb. It is localised—'Mr. Davies, from Easton, near Grantham.' Div. 15. (Miss M. Lane-Claypon.)

Plantago Timbali Reichb. fil.† Alien. Div. 13. Lincoln, by Fossdyke, 1896; Lees, Sneath and Peacock.

Beta maritima L. See under *Frankenia lævis* L. in 12th paper. Also 8th paper *Crit. Cat.*; *Nat.*, 1896, p. 183.

Atriplex prostrata Bab. Native. Divs. 3.4.17.

Atriplex laciniata L. No specimen of this species is known. Watson quoted the Howitt *MS.* and had no specimen I find. But as it has often been recorded for Divs. 9.12, it will turn up most certainly.

Atriplex pedunculata L. Divs. 11.12.18. For Div. 18 see what I say under *Frankenia lævis* L. in this paper.

Salicornia appressa Dum.† Native. Div. 9. Saltfleetby, 1880-95; Miss Mackinder. Verified by Mr. Ar. Bennett, who says it has only been found in Kent before, and adds—'In my eyes it is at most a sub-species of *S. herbacea* L.'

Rumex maximus Schreb. See Mr. W. H. Beeby in *J. of B.*, 1884, p. 20, and his Herb. for specimens. I trusted to the synonymy of other workers in writing in my 8th *Crit. Cat.*, *Nat.*, 1896, p. 185, because I have the following extract from a letter (6.4.'96) from Mr. Ar. Bennett in my

notes—'I find I do not possess *R. latifolius* Borr., but I have seen the specimens gathered by Mr. Beeby in 1883, and I agree with him in considering they are of this variety.' But after my 8th *Crit. Cat.* appeared in print, I received a long letter from Mr. Beeby, from which I extract fully, for it clearly shows how much we want a *Variorum London Flora*—a limited edition—publishing by a company of specialists with every edition of *The London Catalogue*. 'With regard to the *Rumex* with which my name is connected, I do not think that what I have recorded or said is quite correctly stated. I do not go further than to say that the plant which I recorded as *R. maximus* Schreb. is not *R. maximus* Schreb. Whether it be *R. latifolius* Borr., I cannot say, as I am not quite clear whether that plant is really a var. of *R. Hydrolapathum*, or whether it is a synonym of *R. maximus*. If the latter, it certainly is not a var. of *R. Hydrolapathum*. Again, var. *latifolius* is in either case a f. with subcordate leaves, so that my note, as altered, does not quite make sense. I thought I might just explain the point against the time your *Flora* is published. It is, of course, not worth while to notice it now. Equally, of course, I see quite clearly that the statement is due to a reliance on synonymy which I regard as doubtfully correct, but for which I do not wish to be responsible.' Whether I live and have time to publish my *Flora* or not, I want this series of papers to reflect fully the whole truth as it is known about the *Flora of Lincolnshire*, and so thank Mr. W. H. Beeby for his note.

Asarum europæum L.† Alien. Div. 2. Old garden place, Manby Hall, Broughton Wood, circa 1884; Miss F. H. Woolward. It was along with *Petasites albus* Gærtn.

Eriophorum vaginatum L.† Native, if with us now. Div. 7. Dryish bog, Osgodby Common, Usselby Corner, 22.7.'78; F. A. Lees. Specimen sent from his Herb.

Salix fragilis L.† Native. Divs. 1.6.7.9.12.13.18.

Catabrosa aquatica Beauv.† Native. Divs. 2.7.13.

Poa pratensis L. var. **strigosa** Gaud.† Native. Div. 9. Mablethorpe sandhills, 7.1894; H. Charman.

Lolium whitworthiensis G. Sinclair, is the correct nomenclature for the stoloniferous variety of *L. perenne* L., found in Div. 7. See Sinclair's *Hort. Gram. Wob.*, 1825, pp. 211-217.

Hordeum marinum Huds. Native. Divs. 3.4.9.11.12.17. Specimens in Watsonian Herb., Kew.

ASPLENIUM VIRIDE Huds. Div. 11. Toynton St. Peter's Church, 1860; Rev. J. Dodsworth's *Interleaved Flora*. 'The church was restored some twenty years since. The outer walls are all comparatively new, and during the ten years I was at Toynton. I left in June last, I never saw anything of a fern growing on the church. The whole tower was re-pointed from top to bottom, as it had suffered a great deal during some tremendous gales about two years ago.'—Rev. W. J. Margetts, 23.9.'96.

This thirteenth paper brings the whole series up to the date of our present knowledge. All the Herbaria and Bibliographies that are known of have been gone through and analysed into my *Locality Register*, as well as the 'field notes' up to 26.5.1897, with the exception of the genera *Rubus*, *Rosa*, and *Salix*. Other papers will follow at distant intervals as new facts accumulate. I wish again to thank most sincerely all the specialists and earnest workers who have assisted me so kindly and at much personal inconvenience.

Since the above was in type I have received notes from Mr. F. Arnold Lees, as follows:—

Trifolium filiforme L. Native. Div. 9. Somercotes, May 1897; Benjamin Crow (F.A.L.).

Veronica montana L. Native. Div. 8. Acthorpe Wood, May 1897; B. Crow.

Ranunculus repens forma **lingulatus** F. A. Lees. (A shade-grown var. or state with all simple, hairy, ribbed, tongue-like or flammulaceous leaves.) Native. Div. 8. In shade, Bradley Wood, May 1897; B. Crow (F.A.L.).

NOTE—BOTANY.

A New Lincolnshire Plant.—At the eleventh hour, just as the concluding instalment of Peacock's Critical Catalogue has passed the proof-reader, I have received from the discoverer, Mr. Benj. Crow, of Louth, some examples of the true *Trifolium filiforme* L., with equally sessile trifoliate leaflets and loose capillate inflorescence, gathered about Queen's birthday in sandy turf near Louth. It is not given in Watson's *Topographical Botany* for the v. c. 54, and the only old Thompsonian record of 1856 for the name, I held open to doubt in my *Outline*.—F. A. LEES, Leeds, May 28th, 1897.

NOTES AND NEWS.

We have to congratulate the Manchester Literary and Philosophical Society on their recent choice of a President in the person of so industrious a naturalist as Mr. James Cosmo Melvill, M.A., F.L.S., etc., who is so widely known for his attainments as a conchologist, a botanist, and a lepidopterist, and whose fine collections in all these departments were so prominent a feature of interest when the British Association visited the scientific and commercial metropolis of Lancashire.

Naturalist,

HENRY BOSWELL:
WEST YORKSHIRE MOSSES.

WILLIAM WHITWELL, F.L.S.

Mr. F. A. Lees has well indicated (Nat., May 1897, p. 132) the nature of Mr. Boswell's connection with Yorkshire bryology: not special, but general—as a universal referee and helper. Having had the pleasure of some degree of personal acquaintance with him during my official residence at Oxford, 1870-77, kept up by frequent correspondence in after years, I may be permitted to add my testimony to the charm and generosity of Mr. Boswell's friendship. It was not until after my removal to York, in 1877, that I paid any attention to mosses, but Mr. Boswell was an excellent phanerogamic botanist as well as muscologist, and was always pleased to be consulted about my specimens and records. His chief interest had, however, already centred itself upon the study in connection with which his great reputation has been won, and had passed beyond the moss-flora of our own islands to embrace that of the world itself. I well remember spending an evening at his pleasant villa residence on the Woodstock Road, and being astonished by the quantity of material he had brought together from the most distant and various countries. His Sphagnums alone seemed to me enough to occupy a life-time.

Mr. Lees, in his brief appreciation, somewhat misrepresents Mr. Boswell's social position. He was not a saddler, but a manufacturer as well as retailer of portmanteaus and bags. He inherited the business from his father, as a well-established one, at the age of 25, and through it as well as by marriage he was placed in possession of means sufficient for ample comfort and culture—means which he used well. A most kindly humour marked his conversation as well as correspondence. The four letters which I subjoin are given—out of many—as pleasant illustrations of this, and also as being incidentally connected with West Yorkshire species, enabling me to correct two records in Mr. Lees' 'Flora.' It was one of the charms of writing to Mr. Boswell that he was sure to reply before long, and almost always to enclose some 'good thing' or another—often several—for your acceptance.

I have no skill to appraise his work, but know the estimate formed of it by men qualified to judge. I speak of the friendly genial man, the ever-ready helper: to moss-students what Mr. Arthur Bennett is to collectors and recorders of our flowering plants. Higher praise I know not.

June 1897.

The University of Oxford, in 1881, expressed its appreciation of Mr. Boswell's attainments, and of his services in connection with its own herbarium, by bestowing upon him the degree of honorary M.A.

I fear that growing absorption in his subject, and ever-increasing claims upon him in connection therewith, led to mental over-strain. Last year I heard that he was an inmate of the Headington Asylum, and on inquiring of Mr. G. C. Druce was pained to learn that in 1894 brain paralysis had become manifest, and this had gradually extended to the whole system. Mr. Boswell died on the 4th of February last, eight days after the completion of his sixtieth year. A memoir by Mr. Druce, with a good portrait, was given in the 'Journal of Botany' for April. I am glad to say, on the authority of this memoir, that Mr. Boswell's collections have become the property of the University.

The first letter I give has special reference to a *Tortula* (*Barbula*) from the bridge over the Lune above Sedbergh, which had puzzled me, it seemed so much larger and stouter than *T. muralis*. Mr. F. A. Lees in the 'Flora of West Yorkshire' has assigned it to *Barbula* (*Tortula*) *rigidula*. The *Brachythecium rivulare* mentioned was from near Stirton, and has found record in the 'Flora.' The *Salsola* was *Salsola Kali* Linn., the most curious 'casual' I have ever met with, found growing on the side of a newly-cut Oxford road, not far from Mr. Boswell's own house. It is duly recognised in Mr. Druce's 'Flora of Oxfordshire.' A portion of the letter is omitted:

OXFORD, 30th April, 1884.

DEAR SIR,—Your *Tortula* is *T. muralis*, equally common on brick or stone, and equally common, I should say, in every county.

Brachythecium rivulare is frequent in montane districts, but does not often occur with fruit. It seems not to come down to the lowlands. I have gathered it several times barren, and my fruiting specimens were sent from North Yorkshire . . . .

Yes! I remember the *Salsola* very well. Houses now cover the ground. I will speak of it to Mr. Druce.

I have not gathered anything of much interest lately, but here is a bit of *Tortula revoluta* for compare. Not much like your specimen!

You mention Mr. Webster: I am glad to hear of him: he sent me some exotics a time ago, and I still reckon myself in his debt.

There used to be some good mosses in Craven; look out for *Sphagna* on the moors.

Yours very truly,

H. BOSWELL.

Somewhat surprised that the *Tortula* was held to be *muralis* only, I sent Mr. Boswell another sample, which occasioned the following epistle—thoroughly characteristic:

OXFORD, 5th May, 1884.

MY DEAR SIR,—The second *Tortula* sent is the same as the first. In what respect it differs from ordinary *muralis* I cannot discern, and yet I have been accustomed to think I know that plant for some years.

There is also a variety *rupestris* which occurs on stones, rocks, and quarries, and is nearly twice as large. Frequent in North Oxon, and must be also in Craven.

The var. *æstiva* is rare, occurring in shady moist places, and hence ripening a month later. This is smaller than the common form.

I am loth to suppose that I have been mistaken about these things all this while, but still am not unwilling to learn. If, then, it is not *muralis*, there ensues the question—What is it?

But in truth this is 'wrote sarkasticul,' and I believe you may safely call your moss by that name.

Your *Brachyth. rivulare* is, I think, correct, but much too far decayed to be worth anything. Here is a better specimen to compare.

I am glad *T. revoluta* pleased you, and now send *T. convoluta* to match it.

Yours very truly,

H. Boswell.

Mr. Boswell sent me authenticated *Tortula rigidula* Dicks., and I do not wonder (my moss knowledge being so slight) at any confusion between the two species.

The next letter has pleasant personal references to ourselves, and also gives my authority for the record of *Bryum* (*Webera*) *albicans* in the 'Flora of West Yorkshire,' for the Aire valley locality of Skipton Woods. The specimens, it should be mentioned, were in a very juvenile condition:

Oxford, 17th Mar., 1887.

My dear Sir,—Accept my many thanks for your kind congratulations on the degree. It was altogether an unexpected honour on my part; to say I think it was hardly deserved would, I suppose, sound ungrateful; at any rate it is a proof of the liberal spirit and broad-mindedness of the University nowadays.

I was surprised to find you had removed to London. It must be a great change.

Your moss is as like *Hypnum fluitans* 'as I to Hercules': just about! It is a smallish form of *Bryum albicans* (Wahlenb.)—not a very common one, and here extremely rare.

I have not done much in British bryology lately, having so many foreign parcels to hand, but yet this winter have made out three new species for our own flora nevertheless, viz.:—*Campylopus adustus* DeNot., *Bryum obtusifolium* Lindb., *Eurhynchium abbreviatum* Schpr., but if you take the 'Journal of Botany' you will see all about them therein next month. Also in the January number an article on Jamaica.

If you know anyone going abroad, try to induce him to send mosses. They are very little trouble.

Send me those you speak of wanting names; I will try to name them. Mr. Webster sent me some *Hepaticæ* months ago; they still lie on my table—

'in perfect spite,
Too large to swallow and too hard to bite,'

like the cheeses in the trough; but I mean to wrestle again with them very soon.

I am glad to hear Dr. Lees is near the end of his labours.

Yours very truly,

H. Boswell.

June 1897.

I had reported *Mnium affine* Bland to my friend Mr. F. A. Lees in the course of the preparation of the 'Flora of West Yorkshire,' from the Boroughbridge road, York, on the strength of an opinion expressed by Mr. Boswell when I showed him certain specimens during a visit to Oxford. In the 'Flora' a doubt was expressed—very wisely, as was afterwards proved. I thereupon remitted the specimens to Mr. Boswell for a second examination, and they were then recognised as being *M. rostratum*. They were only barren shoots. The mention of *Polygala austriaca* was occasioned by my discovery of the plant at Caterham.

OXFORD, 30th July, 1888.

MY DEAR SIR,—Your packet arrived in due course, but I was so deeply immersed and overworked at the moment that I had to lay it by, and it was not till this morning that I could get a quiet hour to go into the *Mnium* question.

I have to plead guilty to a little bit of carelessness, it would seem. I don't remember naming the Nidd specimens, but that is no matter. The fact is, these barren shoots so much resemble each other in the different species that it is necessary to put them through a close microscopic examination, or error is sure to befall, and a prudent person would not attempt to name them in haste.

The Nidd specimens, then, are not *M. affine*; neither are they *M. cuspidatum* as conjectured by Lees; but *M. rostratum*, a much more frequent species, whose barren shoots resemble those of *affine* very closely, but it is a plant of drier places. *M. affine* likes rills and marshes. I suppose that Lees knew the ground, and that the locality was dry, and hence came his doubts.

In British mosses I have no news lately, but as some compensation I have received four or five hundred from India and Tasmania: beautiful things many of them, but hard work and taking up much time.

Polygala austriaca is a nice find; I never fell in with it.

I hope the remove carries a good increase of pay, and that the illness will soon pass. But it is a season enough to make one ill.

Yet how mosses are growing!

Yours very truly,

H. BOSWELL.

The official 'remove' alluded to carried no pecuniary benefit whatever! My correspondent rightly spoke of 'Nidd specimens' in connection with the supposed *M. affine*; the Boroughbridge road locality should have been given under N. instead of W. in the 'Flora.'

NOTE—HYMENOPTERA.

Sirex juvencus and other Hymenoptera in Lincolnshire.—I received last summer (Sept. 1896) a fine specimen of *Sirex juvencus* alive, also three specimens of *Sirex gigas*. And along with these an exceedingly fine specimen of the striking Ichneumon *Rhyssa persuasoria*. This specimen measured nearly three inches from its head to the end of its long ovipositor. It seems probable that the grub must have fed upon *Sirex* larvæ, which appear to have been unusually common last year. All these specimens were received from Miss Florence Woolward, of Belton, near Grantham (Lincs.), and were taken in that neighbourhood.—A. THORNLEY, South Leverton Vicarage, Lincoln.

THE HARVEST MOUSE IN YORKSHIRE.

OXLEY GRABHAM, M.A., M.B.O.U.

For the last two or three years I have been endeavouring to discover whether the Harvest Mouse (*Mus minutus* Pallas, *Mus messorius* Shaw) is an inhabitant of our county; but so far, I am sorry to say, the evidence has only been of a negative character. I am afraid that most of the records are not to be entirely trusted, and in this Mr. Denison Roebuck agrees with me. I have often been told of harvest mice occurring, and have even had so-called specimens sent to me, but they have always turned out to be the Long-tailed Field Mouse (*Mus sylvaticus*); still, I feel sure that in a county like ours, affording such a variety of geological formation, etc., the little animal must occur, and I shall be very glad if any readers of 'The Naturalist' can put the question beyond doubt. I have taken every species of British Mouse, with this exception, in the county, and I hope in time to find it also. They are most interesting little animals to keep. I had twelve sent me from Norfolk last winter, but unfortunately they had all been put into an empty cartridge box without any food, and when I got them, not only were they all dead, but only one was in a fit condition to stuff. They had fought and literally eaten each other; some were minus heads, others minus eyes, and all save one in a deplorable condition. A second lot of six fared better, as partitions were made in the box, and one mouse and some food placed in each division. I kept my mice in a large vivarium. I put some hay in, which they soon split up and wove into a beautiful compact ball, and I placed a fresh sod of turf in every ten days or so, in which they burrowed and took great delight. I found they preferred wheat to oats or barley, and they were fond of an occasional drink of water. With their prehensile tails they would climb about the hay which they had not made into a nest, and hang on just like monkeys. I gave them to my friend Mr. James Backhouse, and am glad to say they are alive and well. In colour they are a bright fawn above, distinctly reddish on the rump, pure white on the throat and belly, the colours being sharply defined. The nose is rather pointed, and the eyes bright and small, and they are the smallest of British mammals, with the exception of the Lesser Shrew. Most of our local museums appear to despise collections of well-mounted specimens of the smaller British mammalia, e.g., Mice and Bats, and the few distorted and dust-covered specimens that are treasured carefully here and there have absolutely no history attached to them, and may have just as

well come from the moon as from the county in which they are kept for all anyone seems to know or care. Mice are admittedly very difficult subjects for the taxidermist to treat naturally, and even in the national collection at South Kensington, where most of the specimens are exquisitely handled, there is room for considerable improvement amongst the mice. They are so small that it is very difficult in modelling the lips with clay, not to get those that have pointed noses, too blunt, and vice versâ. Again, the tails in some species, like *Mus sylvaticus*, are very delicate; if left unskinned they shrink in an unsightly manner, and even when skinned it is most hard to pass a wire covered with exactly the right amount of wrapping the whole length of the tail without splitting it. An exact representation of a mouse hunched up into a small round ball with the fur fluffed out, a position often assumed by the Harvest Mouse, is almost impossible of attainment.

NOTE—DIPTERA.

Chironomus sylvestris at Lincoln.—*Chironomus* (*Cricotopus* Van de Wulp) *sylvestris*.—A pair 'in cop.' dropped on my book here on the 27th April last. The great contrast of the long black thin body of the male with the short greenish pear-shaped form of the female at once attracted my attention. Dr. R. H. Meade has very kindly supplied me with the name.—JAS. EARLEY MASON, The Lawn, Lincoln N., 3rd May, 1897.

NOTE—FUNGI.

Lincolnshire Fungi.—The following have been forwarded to me lately:—1. *Peziza reticulata*, by Mr. Robinson, from gardens near Louth. 2. *Acetabula vulgaris*, found by Mr. J. Cordeaux in Brackenborough Wood, about the end of April. Though called '*vulgaris*,' Berkeley says of it, 'not common,' but Mr. Cordeaux is a lover of nature in all its forms, feathered and otherwise, and lets little escape him. Cooke (under *Peziza acetabulum*) quotes from the English Flora, 'stem ½ inch high, smooth, deeply but regularly costato-lacunose, the ribs branching at the top and forming reticulations on the outside of the cup, so as to present the appearance of a cluster of pillars supporting a font or roof, with fretwork between them.' Both are spring species.—W. FOWLER, Liverse Vicarage, May 14th, 1897.

NOTE—MOSSES.

Hypnum giganteum at Skipwith: a New Record for the East Riding.—On March 12th this year I found the above moss growing in water on Skipwith Common. This may be of interest, as the moss was not given in the Transactions of the Naturalists' Union for 1878, and Mr. Slater, of Malton, tells me that, as far as he is aware, it is a new record for the East Riding. It is a very interesting form of *Hypnum giganteum*, as there are tufts of brown radicles proceeding from the cells in the upper part of the leaves, as we commonly see in *Hypnum stramineum*, which I also found growing not many yards away from it. The brown radicles are a prothalloid growth, exactly like the growth we get from the young spores before they branch into the more perfect moss plant. It is no doubt a method of propagation, to compensate for the extreme rarity of the fruiting of *Hypnum giganteum*.—WM. INGHAM, B.A., Haxby Road, York. May 21st, 1897.

SOME NEW RECORDS FOR THE MOSS-FLORA OF NIDDERDALE AND WENSLEYDALE:

WITH ADDITIONAL LOCALITIES FOR NORTH YORKSHIRE AND SOUTH DURHAM.

RICHARD BARNES,

The Gardens, Saltburn-by-the-Sea.

SINCE contributing the notes on the bryology of the marshes adjoining the Tees estuary and other portions of North Yorkshire (see 'Naturalist,' May 1892, pp. 151-153, and June 1892, p. 186), I have had the pleasure in the districts referred to, of gathering in new localities a number of mosses and hepatics, which, with some few exceptions, are sufficiently uncommon to be considered worth placing on record.

In regard to the Moss-Flora of Wensleydale, a few rare species have been added to those gathered at the Aysgarth meeting of the Yorkshire Naturalists' Union, May 1893, and as no detailed list of the latter has yet been given in the 'Naturalist,' it may at least be of some interest to bryologists to include them with the others more recently met with.

It need scarcely be observed that the district has been long known for its richness in phænogamous plants, and will, doubtless, on a more thorough investigation, be found equally so in mosses and hepatics. The following species are not mentioned in Baker's 'North Yorkshire' for the Yore Valley, and are new, so far as I am aware, to that portion of the county. Those marked with an asterisk have been gathered since the Aysgarth excursion.

*Gymnostomum commutatum Mitt.
Dicranella Schreberi Hedw.
Seligeria Doniana Sm.
Seligeria pusilla Hedw.
*Seligeria tristicha Brid.
*Didymodon cylindricus Bruch.
Didymodon sinuosus Wils.
*Trichostomum mutabile Bruch.
*Trichostomum mutabile Bruch var. cophocarpum Sch.
Trichostomum crispulum Bruch.
*Trichostomum nitidum Lindb.
*Barbula recurvifolia Schpr.
*Barbula revoluta Schwg.
*Barbula intermedia Brid.
Zygodon Stirtoni Schpr.
Orthotrichum obtusifolium Schrad.
Orthotrichum fastigiatum Bruch.
Orthotrichum stramineum Hornsch.
Orthotrichum tenellum Bruch.
*Bryum concinnatum Spruce.
Mnium cuspidatum Hedw.
Fissidens decipiens DeNot.
*Anomodon longifolius Schleich.
Eurhynchium Teesdalii Sm.
Rhynchostegium tenellum Dicks.
Rhynchostegium depressum Bruch.
*Amblystegium Sprucei Bruch.
*Amblystegium confervoides Brid.
*Hypnum incurvatum Brid.
*Hypnum ochraceum Turn.
*Hypnum polymorphum Hedw.
*Hypnum elodes Spruce.
*Hylocomium brevirostrum Ehrh.
Lejeunea calcarea Lib.
*Cephalozia connivens Dicks.

During November 1896, I had the opportunity of making a few short excursions in Upper Nidderdale, which were accompanied with the good result of finding the greater part of the rarities already noted for Wensleydale and Upper Swaledale. In some parts of the district the same physical features may be observed, though not on so wide a scale, as occur in Upper Swaledale, and from what I noted during the few excursions alluded to, I have reason to believe the district will, on a still closer and more extended search, be found equally as rich in musci and hepaticæ as the two dales previously referred to. The following species at the date alluded to above were new to the Nidd drainage area:—

Dicranella subulata Hedw.
Seligeria acutifolia var. longiseta Lindb.
Seligeria tristicha Brid.
Blindia acuta Hedw.
Didymodon luridus Hornsch.
Didymodon sinuosus Wils.
Barbula recurvifolia Schpr.
Zygodon viridissimus var. rupestris Lindb.
Discelium nudum Dicks.
Webera annotina Hedw.
Cylindrothecium concinnum DeNot.
Orthothecium intricatum Hartm.
Eurhynchium pumilum Wils.
Eurhynchium Teesdalii Sm.
Rhynchostegium depressum Bruch.
Amblystegium Sprucei Bruch.
Amblystegium confervoides Brid.
Hypnum ochraceum Turn.
Hypnum stellatum Schreb. var. tensum Brid.
Lejeunea Rossettiana Massal.
Cephalozia laxifolia Hook.

In regard to nomenclature the London Catalogue of British Mosses, 1880, has been followed merely as a matter of convenience.

With the exception of a few instances that are more particularly indicated, the localities are marked with the initial letter of the respective districts:

D. (Durham portion of Teesdale).
T. (Teesdale—Yorkshire portion).
C. (Cleveland).
R. (Ryedale).
S. (Swaledale).
W. (Wensleydale).
N. (Nidderdale).

The more critical mosses contained in this list have been examined and verified by Dr. Braithwaite, F.L.S., and the herbarium by Mr. M. B. Slater, F.L.S., to both of whom my sincere thanks are kindly tendered.

ACROCARPI.

SPHAGNACEÆ.

Sphagnum fimbriatum Wils. Pilmoor, Thirsk; Blayshaw Beck (N.).

Sphagnum strictum Lindb. Richmond (S.); Codhill Bog (C.) with male inflorescence.

Sphagnum teres Angst. Lockwood Beck (C.); Codhill Bog (C.); Hawnby (R.).

Sphagnum molle Sull. var. **Mülleri** Schpr. Smiesworth, Hawnby (R.).

Sphagnum tenellum Ehrh. Pilmoor, Thirsk.

WEISSIACEÆ.

Systegium crispum Hedw. Clay bank near Thirsk.

Gymnostomum tenue Schrad. Deepdale (T.).

Gymnostomum commutatum Mitt. (= *Barbula curvirostris* var. *commutata* (Mitt.) Lindb.). Whitfield Force (W.).

Weissia viridula Brid. var. **densifolia** Schpr. Ettersgill Beck (D.). A plant of shorter growth occurs near Winch Bridge (Yorkshire side) which appears to belong to the above.

Cynodontium polycarpum Ehrh. Holwick (T.). Specimens of the above gathering have the capsules without the strumiferous neck, and bear the rest of the distinguishing characters of typical *C. polycarpum*. *C. strumiferum* was the plant Dr. Spruce gathered, and which he refers to in his 'Musci and Hepaticæ of Teesdale.'

Dicranella crispa Hedw. Lounsdale (C.).

Dicranella Schreberi Hedw. Deepdale (T.); Holwick (T.); on a clay bank near Thirsk. The var. *elata* I have noted in most, if not all, of the glens in this part of Cleveland.

Dicranella subulata Hedw. Blayshaw Beck (N.); Lockwood Beck (C.); by the side of the Rye, near Hawnby (R.).

Dicranella rufescens Turn. Abundant by the side of Blayshaw Beck (N.); and in similar situations at Hawnby (R.).

Dicranodontium longirostrum Web. & Mohr. On rotting tree stump, Hawnby (R.). New to North Yorkshire.

Campylopus atrovirens DeNot. The Westmorland side of Maize Beck is the only locality mentioned for this plant in Baker's 'North Yorkshire.' It occurs, however, in two or three places on Holwick and Cronkley Fells (T.).

BRUCHIACEÆ.

Archidium phascoides Brid. Holwick Fell (T.).

Pleuridium nitidum Hedw. Billy Bank Wood, Richmond (S.).

Pleuridium alternifolium B. & S. Bainbridge, Wensleydale.

SELIGERIACEÆ.

Seligeria Doniana Sm. Rokeby (T.); How Stean Beck (N.); Whitfield Gill (W.); Park Scar, Cragdale (W.); Hawnby (R.).

Seligeria pusilla Hedw. How Stean Beck (N.); Whitfield Gill (W.).

Seligeria acutifolia var. **longiseta** Lindb. How Stean Beck (N.).

Seligeria tristicha Brid. Very plentiful in one or two places on dripping limestone rocks, How Stean Beck (N.); Aysgarth Force (W.); Whitfield Gill (W.); in several places on the north side of Addelburgh (W.); and at the High Force and Park Scar Waterfalls in Semerdale (W.).

Campylostelium saxicola W. & M. Wiley Cat Wood, Slapewath (C.). Fairly well distributed throughout this part of North-East Yorkshire.

Blindia acuta Hedw. Blayshaw Beck (N.); How Stean Beck (N.); and Ravensgill (N.).

POTTIACEÆ.

Pottia intermedia Turn. On garden ground, Thirsk.

Didymodon luridus Hornsch. Deepdale (T.); Rokeby (T.) near Thirsk; and at Kilvington Mill, Thirsk; Hawnby (R.) with fruit; Saltburn (C.), with fruit; Greenhow Hill (N.).

Didymodon flexifolius Dicks. Middlesmoor (N.), in several places; and at Greenhow Hill (N.).

Didymodon cylindricus Bruch. Whitfield Force (W.); Hawnby (R.), with perfect fruit.

Didymodon sinuosus Wils. Blayshaw Beck (N.); Goydon Pot Hole (N.); Rokeby (T.); Thirsk.

Ditrichum homomallum Hedw. Blayshaw Beck (N.); Ravensgill (N.).

Trichostomum mutabile Bruch. Addelburgh (W.); a form occurs on the sea banks near Saltburn, the leaves of which are certainly more linear than in typical *T. mutabile*, yet the cuticular apex of the leaf, so characteristic of *T. crispulum*, is altogether wanting, and, therefore, I think it can be more safely referred to the above species.

Trichostomum mutabile Bruch. var. **cophocarpum** Sch. Addelburgh (W.).

Trichostomum crispulum Bruch. Addelburgh (W.).

Trichostomum nitidum Lindb. Askrigg (W.); wall near High Force, Semerdale (W.); Deepdale (T.).

Barbula rigida Schultz. Pierce Bridge (D.).

Barbula ambigua B. & S. On walls at Skelton (C.); and on clayey ground, Saltburn (C.).

Barbula marginata B. & S. On the north wall of Thirsk Church, and at Kilvington Mill, near Thirsk.

Barbula recurvifolia Schpr. Aysgarth Force (W.); Whitfield Gill (W.); Pateley Bridge (N.); and Greenhow Hill (N.).

Barbula cylindrica Tayl. Pateley Bridge (N.).

Barbula revoluta Schwg. Aysgarth Force (W.); Barnard Castle (D.); and of very general distribution throughout Nidderdale.

Barbula angustata Wils. Hedge-bank, near Thirsk; Lingdale (C.); Levisham, Y.N.U. Excursion. The plant from the last-mentioned station is a very distinct form, the margin at midway of the leaf having from 6—8 rows of elongated cells.

Barbula ruralis L. var. **arenicola** Braithw. Sea Banks, Redcar (C.), October 1892.

Barbula intermedia Brid. Askrigg (W.); Aysgarth (W.); Helmsley (R.); Hawnby (R.).

Barbula papillosa Wils. Hawnby (R.); Rokeby (T.); Richmond (S.).

CALYMPERACEÆ.

Encalypta ciliata Hedw. Cragdale, Semerdale (W.).

GRIMMIACEÆ.

Grimmia orbicularis B. & S. Near the Abbey Bridge, Rokeby (D.); Barnard Castle (D.). New record for the county of Durham.

Ptychomitrium polyphyllum Dicks. Saltburn (C.); on walls by the road from Skelton to Lockwood Beck (C.).

Amphoridium Mougeotii B. & S. Upper How Stean Beck (N.).

Zygodon viridissimus Dicks. var. **rupestris** Lindb. Upper How Stean Beck (N.). Unlike the type or *Z. Stirtoni*, which latter species almost invariably occurs on the limestone, this form grows in more extended patches, apparently preferring the gritstone formation.

Zygodon Stirtoni Schpr. Goydon Pot Hole (N.); Addelburgh (W.).

Ulota Drummondii Grev. Rookhope Burn, Weardale, co. Durham.

Orthotrichum obtusifolium Schrad. Rokeby (T.); Leyburn (W.), Y.N.U. Excursion, May 1893.

Orthotrichum fastigiatum Bruch. Rokeby (T.); Wensley, Y.N.U. Excursion, May 1893.

Orthotrichum pumilum (non Swartz) Dicks. (= *O. Schimperi* Hamm.). Rokeby (T.).

Orthotrichum tenellum Bruch. Saltburn (C.); Rokeby (T.); Wensley (W.), Y.N.U. Excursion, May 1893.

Orthotrichum pallens Bruch. Rokeby (T.).

Orthotrichum Lyellii H. & T. Askrigg (W.), with fruit.

FUNARIACEÆ.

Discelium nudum Dicks. Goydon Pot Hole (N.); near old lead workings, Greenhow Hill (N.).

Ephemerum serratum Schreb. By side of pool, Saltburn (C.).

BARTRAMIACEÆ.

Amblyodon dealbatus Dicks. Coatham marshes (C.); Holwick Fell (T.); Richmond (S.).

Meesia uliginosa Hedw. First gathered in Teesdale by Spruce near Winch Bridge. I have recently gathered it on Holwick Fell (T.).

BRYACEÆ.

Webera annotina Hedw. Greenhow Hill (N.); Saltburn (C.).

Zieria julacea Schpr. Cliff Gill, Upper Swaledale, with fruit.

Bryum inclinatum Swartz. In pasture near Saltburn (C.). Prior to Philibert's discovery regarding the peculiar structure of the peristome of *B. pendulum*, much confusion seems to have existed as to the difference between that species and *B. inclinatum*. In Dixon and Jameson's 'Student's Handbook of Br. Mosses,' allusion is made to the fact that most herbarium specimens marked *B. pendulum* have been found to belong to *B. inclinatum*, yet, strange to say, the examples that I have received purporting to be the latter species have all possessed the distinguishing character of *B. pendulum* pointed out by Philibert, viz., the oblique lines connecting the articulations of the teeth of the exostome.

In Lees' 'West Yorkshire' the somewhat uncommon occurrence of *B. inclinatum* is noted, and, so far as my own experience is concerned, I have found (and especially in this the north-east portion of the county) *B. pendulum* to be the much commoner plant of the two.

Bryum Warneum Blandow. Sea banks, Saltburn (C.); Seaton Snook, Co. Durham.

Bryum lacustre Brid. Deepdale (T.); Holwick Fell (T.); Lockwood Beck (C.).

Bryum calophyllum R.Br. Lockwood Beck (C.).

Bryum uliginosum Bruch. By the side of the Rye near Hawnby (R.); Holwick Fell (T.).

Bryum bimum Schreb. Coatham marshes (C.).

Bryum bimum Schreb. var. **cuspidatum** Bry. Eur. Ettersgill Beck (D.).

Bryum murale Wils. On lime rubbish, near Croft, with male flowers.

Bryum argenteum L. var. **lanatum** P.B. Holwick (T.), with fruit.

Bryum concinnatum Spruce. Aysgarth Force (W.); Whitfield Gill (W.); Deepdale (T.); Holwick Fell (T.); High Force (T.).

MNIACEÆ.

Cinclidium stygium Swartz. Holwick Fell (T.).

Mnium cuspidatum Hedw. Whitfield Gill (W.).

Mnium affine var. **elatum** Br. Sch. (= *M. Seligeri* Juratzka). Coatham Marshes (C.).

Mnium stellare Hedw. How Stean Beck (N.).

Mnium subglobosum B. & S. Lockwood Beck (C.); Slape Wath (C.).

POLYTRICHACEÆ.

Pogonatum aloides Hedw. var. **minus** Bry. Eur. (= *P. aloides* Hed. var. *Dicksoni* Turn.). Lockwood Beck (C.).

AMPHOCARPI.

FISSIDENTACEÆ.

Fissidens exilis Hedw. Hedge-bank, near Thirsk.

Fissidens crassipes Wils. (= *Fissidens fontanus* Schpr.). In the Swale, near Keld (S.).

Fissidens decipiens DeNot. (= *Fissidens cristatus* Wils.). How Stean Beck (N.); Whitfield Gill (W.), with fruit; Hawnby (R.), with fruit.

CLADOCARPI.

RIPARIACEÆ.

Fontinalis antipyretica L. var. **gracilis** Lindb. How Stean Beck (N.); Swinner Gill, Upper Swaledale. The form that occurs in the two localities named above seems to agree closely with the descriptions in the text-books, and may with some degree of certainty be referred to the above variety.

LESKEACEÆ.

Anomodon longifolius Schleich. Askrigg (W.).

Thuidium recognitum Hedw. Maize Beck (Westmorland); Greenhow Hill (N.), in great plenty.

HYPNACEÆ.

Pterogonium gracile Dill. Richmond (S.).

Cylindrothecium concinnum DeNot. Greenhow Hill (N.).

Orthothecium intricatum Hartm. Whitfield Gill (W.); Park Scar, Semerdale (W.); How Stean Beck (N.); on an outcrop of the limestone at the bottom of Ladhill Gill (R.). Some interest is attached to the occurrence of this species in the last mentioned locality, for although it is more or less generally distributed throughout the western dales, I am not aware of another instance of its having been gathered eastward of the Central Valley.

Eurhynchium pumilum Wils. How Stean Beck (N.).

Eurhynchium Teesdalii Sm. Wensley Mill (W.); How Stean Beck (N.).

Rhynchostegium tenellum Dicks. Aysgarth (W.); Park Scar, Semerdale (W.); and at the lowest waterfall in Skell Gill Beck (W.); How Stean Beck (N.).

Rhynchostegium depressum Bruch. Askrigg (W.); Upper Semerdale (W.); Goydon Pot Hole (N.); Blayshaw Beck (N.).

Plagiothecium latebricola Wils. Very fine on rotting stumps by the Rye, above Hawnby (R.); Leckby Carr, near Topcliffe, in tolerable abundance.

Amblystegium Sprucei Bruch. Aysgarth Force (W.); Mill Gill (W.); How Stean Beck (N.).

Amblystegium confervoides Brid. Askrigg (W.); Aysgarth Force (W.); Goydon Pot Hole (N.).

Amblystegium serpens L. var. **tenue** Schpr. Winston Bridge, on both sides of the Tees; Richmond (S.); a form which closely approaches the above variety occurs at Goydon Pot Hole, Nidderdale, and at Saltburn (C.).

Amblystegium radicale P. Beauv. Coatham Marshes (C.).

Amblystegium varium (Hedw.) Lindb. Marske Mill, Saltburn (C.).

Amblystegium irriguum (Wils.) Schpr. Gainford, on the Yorkshire side of the Tees; Liverton Beck (C.).

Amblystegium riparium L. var. **longifolium** Schultz. On stumps in a pond near Northallerton.

Amblystegium riparium L. var. **abbreviatum** Schimp. Coatham Marshes (C.).

Hypnum filicinum L. var. **vallisclausæ** Brid. (= *Amblystegium fallax* (Brid.) Milde. In pools below Cronkley Scars (T.).

Hypnum filicinum L. var. **gracilescens** Schpr. (= *Amblystegium filicinum* L. var. *trichodes* Brid.). Langdon Beck (D.).

Hypnum incurvatum Brid. Winston Bridge (T.); Aysgarth Force (W.); Askrigg (W.).

Hypnum Patientiæ Lindb. (= *H. arcuatum* Lindb.; Sch. Syn.). Hawnby (R.); by West Stonesdale Beck, Upper Swaledale.

Hypnum ochraceum Turn. Blayshaw Beck (N.); Whitfield Gill (W.); Gainford (D.); Hawnby (R.); Saltburn (C.).

Hypnum polymorphum Hedw. Rokeby (T.); Aysgarth Force (W.).

Hypnum elodes Spruce. Pilmoor, near Thirsk; Semerwater (W.); in a bog near Wensley (W.).

Hypnum chrysophyllum Brid. Saltburn (C.).

Hypnum polygamum B. & S. In wet pasture, near Saltburn (C.).

Hypnum stellatum Schreb. var. **protensum** Brid. Greenhow Hill (N.).

Hypnum giganteum Schpr. Pilmoor, near Thirsk; Semerwater (W.); Widdy Bank Fell (D.).

Hypnum sarmentosum Wahl. In addition to the locality mentioned in Baker's 'North Yorkshire' for this plant, it may be noted that it grows plentifully in two or three places on Holwick Fell (T.), and also in wet places near the White Force (T.).

Hypnum cuspidatum L. A form occurs on Pilmoor which Dr. Braithwaite considers intermediate between the type and the var. *pungens* Schpr.

Hypnum stramineum Dicks. Ladhill Gill (R.); Smelsworth (R.); Blayshaw Beck (N.).

Hylocomium brevirostrum Ehrh. Whitfield Gill (W.), with fruit.

HEPATICÆ.

Lejeunea calcarea Lib. Keld (S.); Richmond (S.); Semerdale (W.); Whitfield Gill (W.); Mill Gill (W.).

Lejeunea Rossettiana Massal. Ettersgill Beck (D.); Rokeby (T.); How Stean Beck (N.).

Cephalozia Francisi Hook. Hawnby (R.); Lockwood Beck (C.).

Cephalozia fluitans Nees. Leckby Carr, near Topcliffe, Y.N.U. Excursion.

Cephalozia laxifolia Hook. Slape Wath (C.); Snilesworth (R.); Blayshaw Beck (N.).

Cephalozia curvifolia Dicks. Easington Beck (C.), on rotting tree-trunk; Ravensgill (N.), on sandstone rock. Found first in Nidderdale by R. Teesdale at Brimham Rocks.

Cephalozia connivens Dicks. Leckby Carr, Topcliffe, Y.N.U. Excursion; Pilmoor, Thirsk; Addelburgh (W.).

Cephalozia catenulata Hübn. Roxby Woods (C.).

Cephalozia catenulata Hübn. var. **pallida.** Easby Moor (C.).

Kantia arguta Nees & Mont. Growing very fine in several places near Saltburn (C.).

Ptilidium ciliare Nees var. **pulchrum.** On trees at Gainford (T.); Hawnby (R.); Gurtof Gill, Boltby, near Thirsk; Guisbrough (C.).

NOTES—ORNITHOLOGY.

Unusual Nidification of Missel Thrush (Turdus viscivorus).—A pair have nested and brought off four young here in a box-bush (*Buxus sempervirens*). The nest is not four feet from the ground, and is within arm's length of any one standing on the gravel-walk along which persons are continually passing: a most unusual situation for this bird. The young are nearly fledged.—JAS. EARDLEY MASON. The Lawn, Lincoln, N., 3rd May, 1897.

Sanderling in June.—I think Mr. E. G. Potter is mistaken in supposing that the appearance of the Sanderling (*Calidris arenaria*) in the British Islands in June is at all unusual. On looking through my note books I find numerous records of the appearance of this species on the Merionethshire coast during the month named, often in considerable numbers. For instance, on June 1st, 1893, my note says 'large numbers of Sanderlings along the shore . . . in flocks of from a dozen to thirty or forty.' Again, on June 7th, 1894, 'Several large flocks of Sanderlings along the shore.' And on the 14th of the same month, 'a few small flocks' on the same part of this coast. Indeed, I should consider the birds of regular occurrence in June. The Turnstone (*Strepsilas interpres*) is another species which may be seen on the coasts of Merioneth and Caernarvon until long after the middle of June, though not in such large numbers as the Sanderling. A very much scarcer bird at this season is the Knot. I have only a single note of its presence in summer, namely, a pair of birds in full breeding dress on June 7th, 1894, on the sands near Barmouth.—G. H. CATON HAIGH, Aber-Iâ, Penrhyndeudraeth, Merionethshire, North Wales, May 8th, 1897.

Flamborough Bird Notes.—Arrival of Summer Visitants.—Redstart (*Ruticilla phœnicurus*), March 22nd; Ring Ouzel (*Turdus torquatus*), male, at 3 a.m., April 20th, wind NNE., with rain, flew against the Lighthouse, seen by the head lightkeeper, Mr. T. O. Hall; April 27th, Whitethroat (*Sylvia sylvia*), plentiful; April 28th, Cuckoo (*Cuculus canorus*), with a very thick fog on the headland; April 29th, Pied Flycatcher (*Muscicapa atricapilla*), scarce; April 30th, Hoopoe (*Upupa epops*) seen, a splendid specimen; May 4th, the Great Plover (*Œdicnemus œdicnemus*) seen, a grand bird, very rare. Strange as it may appear, the latter two birds made their appearance on the headland. May 5th, I observed a pair of Hooded Crows (*Corvus cornix*), rather late in the season. The other day, Mr. Hall, the lightkeeper, sent me a Redstart (*Ruticilla phœnicurus* which had been killed with flying against the lighthouse; May 6th, about 50 Dotterels (*Eudromias morinellus*) seen in a field near to Dotterel Inn by Mr. D. Atkinson. —MATTHEW BAILEY, Flamborough, May 17th, 1897.

Naturalist.

SOME NIDDERDALE MOSSES.

LLEWELLYN J. COCKS,

Godolphin House, Harrogate.

THE following notes of observations made in this district during the past eighteen months will, I hope, be of interest to bryologists. The localities mentioned all fall within the Nidd drainage.

Anisothecium crispum Lindb. (*Dicranella Schreberi* Schimp.) grows in a bog at the foot of Birk Crag, Harrogate, and its variety *elatum* (Schimp.) in a swampy field on Oak Beck Farm near.

Seligeria Donii C. M. and **S. setacea** Lindb. are both abundant on rocks by the Nidd at Bilton Banks. (My friend Mr. R. Barnes has recently found the much rarer *S. trifaria* Lindb. on the limestone in Upper Nidderdale, a district which I have not yet visited. His keen eye has detected the same plant in Swaledale and Wensleydale.)

Phascum curvicolle and **Pottia recta** are both frequent on the ground in disused magnesian limestone quarries in the Knaresborough district.

Tortula marginata Spruce is on rocks near the Dropping Well, Knaresborough.

Tortula angustata Wils. On hedge-banks in Bilton Park. (A very pretty moss, and quite distinct from *T. subulata*.) Both these Tortulæ are previously unrecorded for West Yorks.

Mollia tenuis Lindb. (*Gymnostomum tenue* Schrad., plur. auct.) is by no means uncommon on the magnesian limestone. It is particularly fine in Nidd Rock Quarry, near Ripley.

Mollia calcarea Lindb. (*Gymnostomum calcareum* Nees and Hornsch., Schp. Syn.) I have recently gathered at Knaresborough. This is now first recorded for Yorkshire. It is very rare in Britain, having been found only in Derbyshire and Scotland.

Mollia tenuirostris (Hook. Tayl.) Lindb. (*Didymodon cylindricus* Br. Sch.) occurs sparingly at Bilton Banks.

Barbula revoluta (Schrad.) Brid.—unaccountably described as 'rare' in 'The Flora of West Yorkshire'—is plentiful in the limestone districts and on the mortar of walls off the limestone. It covers the rocky sides of Knaresborough Railway Station.

Schistostega osmundacea Mohr. still flourishes in great luxuriance in the abandoned sandstone quarries at Guy's Cliff,

Pateley Bridge, whence it was first noted by Nowell. I have also unearthed it at Brimham Rocks (north side) and in rabbit burrows at Birk Crag, Harrogate.

At the last-named place I also find in plenty

Stableria gracilis Lindb. (*Orthodontium gracile* Schw.). The only other Yorkshire locality noted for this rare moss is the Strid, Wharfedale (Spruce). I am inclined to think it may be more commonly distributed than would appear, for since it is very shy in fruiting it is quite possible it may have been mistaken for some of the smaller Dicranaceæ, such as *Dicranoweissia cirrhata*, to which it bears a superficial resemblance.

Bryum proliferum (L.) Sibth. and **Mnium pseudopunctatum** Br. Sch., are both close by on Oak Beck Farm. I have not had the good fortune to find the former in fruit.

Cryphæa heteromalla Mohr. grows on the bole of a large beech by the roadside west of Ribston. This appears to be very rare in our northern counties.

Thuidium hystricosum Mitt. (now separated from *T. abietinum* Br. Sch.) may be found in small quantities in most of the magnesian limestone quarries—often in company with *Hylocomium splendeus*. Mr. Wesley first noted it for Yorkshire in 1877 from a quarry near Wetherby.

Thuidium recognitum (Hedw.) Br. & Sch. is common in similar places.

Plagiothecium latebricola Br. & Sch. grows in Guy's Cliff Wood, and I have this month found it in fruit near Burn Bridge, Pannal.

Amblystegium radicale (P. de Beauv.) Mitt. is on a hedge-bank at Farnham, near Knaresborough.

Amblystegium chrysophyllum var. *β.* **erectum** Bagnall is an addition to the West Yorkshire list. It grows in dense tufts on the banks of the cutting east of Ripley Station.

I should state that, where there has been any possibility of a doubt as to the identity of any of the above plants, I have submitted specimens to Dr. R. Braithwaite, who has very kindly either named them or confirmed my determination.

March 1897.

NOTE—ORNITHOLOGY.

Grasshopper Warbler in Holderness.—On Thursday, May 6th, about 8 p.m., I heard the Grasshopper Warbler (*Locustella nævia*) near Sproatley. The bird was singing among some low bushes by the roadside. This is the first time I have met with it in Holderness.—T. PETCH, Hedon, Hull, 17th May, 1897.

Naturalist.

AN ANGLER'S BASKET.

An | Angler's Basket | Filled in Sunshine and Shade | through the space of forty years: | being a collection of | Stories, Quaint Sayings, and Remembrances; | with a few | Angling Hints and Experiences | by | T. E. PRITT, | some years Angling Editor of the 'Yorkshire Post'; Author of 'North-Country | Flies,' 'The Book of the Grayling,' &c., &c. | Manchester: | Abel Heywood & Son, . . . | London: | Simpkin, Marshall, Hamilton, Kent & Co., . . . | 1896. [Crown 8vo, cloth, pp. i.—xiv. + 1-148.

THIS little book, a posthumous work, full of interest as it is, and characteristic in its manner and style, as well befits its late and ever to-be-lamented author, does not contain very much that concerns the naturalist in his character of student of the finned denizens of our fresh waters, but every now and then, here and there through the book, are numerous if sometimes casual notes of value as to the habits and customs of fish. The time of year at which *Thymallus thymallus* is at his best, the position which the plucky little game fish *Salmo fario* takes up in the streams, a slight sketch of sea-fishing at Filey with the results thereof, the local names of the Gwyniad of Ullswater, and numerous other bits diversify the witticisms, tales and short poems with which the book abounds. Altogether, the book is interesting, and we sincerely hope the results of its sale will yield a substantial return for the benefit of the widow of its author, a portrait of whom constitutes an appropriate frontispiece.

NOTES AND NEWS.

The March 'Journal of Botany' contains an appreciative notice by its editor of the life and scientific career of the late John Whitehead, one of the most distinguished of the band of working-men naturalists of the Manchester school. He was born at Dukinfield in Cheshire in 1833, and died at Oldham on the 6th May, 1896. Would that there were more like him!

The 'Annual Report and Proceedings of the Barrow Naturalists' Field Club and Literary and Scientific Association, vol. xi., 1895-6,' has just been issued. In the 'report' of the General Committee they point out that the Society is losing its character as a Field Club and is becoming a Literary Society. Forewarned by this official statement there need be no surprise that out of 17 papers read before the Society only four have any local bearing, and of these four only one, by Messrs. W. B. Kendall, C.E., and Harper Gaythorpe, on 'Submerged Peat Peat Mosses, &c., in Barrow Harbour,' can be called scientific. The Geological, Photographical, and Botanical Sections have little to report, and only the botanical anything to record, viz., two aliens, *Mercurialis annua*, waste ground near Ormsgill, and *Amsinckia lycopsoides*, a Californian, on the saltmarsh near Foxfield Station; and *Polemonium caeruleum*, a single plant on Walney; here, of course, a casual. The coming session completes the 21st year of the Society's existence. We hope this fact will stir up sufficient enthusiasm amongst the members to make the future proceedings of the Society rather less mournful reading. The literary character of Swift or Defoe, accounts of trips to Norway, Iceland, and Grindelwald have nothing to do with the work of a local natural history society in England, especially in a district where so much remains to be done, and where, too, the Society is in a solvent condition.

June 1897.

BARRETT'S BRITISH LEPIDOPTERA.

The | Lepidoptera | of the | British Islands | A descriptive account of the Families, Genera, and | Species indigenous to Great Britain and | Ireland, their preparatory States, | Habits, and Localities | By | CHARLES G. BARRETT, F.E.S. | one of the Editors of the "Entomologist's Monthly Magazine" | **Vol. III.** | **Heterocera,** | **Bombyces, Noctuæ.** | London: L. Reeve and Co. | . . . | . . . | 1896 | [8vo, cloth, 396 pages].

WE are pleased to welcome a further instalment of Mr. Barrett's excellent account of the British Lepidoptera, and can only repeat and emphasise the commendations which we have already bestowed on the first and second volumes. In this third volume the families treated of are the *Bombycidæ*, *Endromidæ*, *Saturnidæ*, *Drepanulidæ*, and *Notodontidæ*, of the Bombyces, which occupy about half the volume, the other half being devoted to the families *Cymatophoridæ* and *Trifidæ*, of the Noctuæ, the great genus *Agrotis* occupying a leonine share of the space.

We are sorry to see that the author has not emancipated himself from the practice of using capital letters for the initials of certain specific names, and that he still employs the redundant comma between the specific name and that of its author.

The appearance of succeeding volumes will be eagerly looked for by lepidopterists, whose debt of gratitude to Messrs. Lovell Reeve & Co. is enhanced with each successive volume of the series.

NOTES—ORNITHOLOGY.

The Long-eared or Horned Owl in Lincoln N.—When boys my brothers and I were fond of keeping this bird (*Asio otus* L.), rearing it from the nest. One, named 'Dick,' was never in his life confined in a cage. When mature he roosted in a larch plantation about 100 yards from my father's house (at Rigsby near Alford), from which a particular whistle would always fetch him, knowing well that a mouse or bird was ready for him. This he used to take on the wing from my hand. The mouse held by the tail or the bird by a leg at arm's length was snatched by 'Dick' with his talons as he flew past under my arm, turning almost on his back at the instant. No dog or cat on the farm dare venture a second encounter with him; indeed he once attacked a small boy cousin of mine who had offered some familiarity which 'Dick' resented, and scratched his face somewhat severely, just missing his eye. A younger relative of 'Dick's' distinguished himself one day by appropriating a small dressed doll, which one of my sisters had left near him, and bolting it, so far at least as the feet, which were on the point of disappearing down his capacious throat, and by which it was hauled back into free air again. 'Dick' fell a victim to his passion for bathing, and was drowned in a tub too narrow for him to spread his wings in.—JAS. EARDLEY MASON, The Lawn, Lincoln, 4th May, 1897.

Lakeland Bird Notes.—The Flamborough bird notes are very interesting. At Seascale, on the coast of Cumberland, I saw the Redstart (*Ruticilla phœnicurus*) on April 21st. This is later than its usual appearance in Lakeland. Many birds were late this year, however, probably owing to the continued cold winds. I did not hear the Blackcap Warbler (*Sylvia atricapilla*) at Rydal until May 7th, as opposed to April 28th of last year; and the first Grey Flycatcher (*Muscicapa grisola*) I did not see until May 14th, as opposed to May 11th last year, while it was the 17th before the pair re-appeared that nested on this house.—MARY J. ARMITT, 18th May, 1897.

PRESIDENT'S ADDRESS
TO THE YORKSHIRE NATURALISTS' UNION:
DELIVERED AT LEEDS, NOVEMBER 26th, 1896.

JOHN CORDEAUX, F.R.G.S., M.B.O.U.,
Great Cotes House, R.S.O., Lincoln.

Ladies and Gentlemen,—A chief duty to-night, on the termination of my year of office as President of our Union, is to express my thanks for the very great honour you conferred when you elected me. My second duty is to vacate the chair in favour of my most distinguished successor, Professor W. Boyd Dawkins, F.R.S.

In the first place, I have to say a few words in connection with the Annual Excursions, six in number, arranged and successfully carried out under the organisation of our able and painstaking Secretary, Mr. W. Denison Roebuck. I believe I am correct in saying that the completion of my year of Presidency coincides with the completion of his 21st year of active service as Senior Honorary Secretary.

I.—The first Excursion was on April 18th, to Hackfall and Tanfield and the banks of the Ure to Ripon. Mr. H. Crowther occupied the chair at the meeting. Botanically, the meeting was a great success; the most remarkable plant found was a little mountain one—*Hutchinsia petræa*; the seeds probably washed down from some Wensleydale ridge.

II.—The second, May 25th—Whit Monday—to Bolland, was a four days' excursion. This was, altogether, a great scientific success, although the attendance was by no means what was expected. A very complete moss-flora was collected, and the geologists did good work in the classic field of Phillips.

III.—On June 20th the Union met at Selby for Skipwith Common; this meeting, at which I was present, was a most interesting one, the drift deposits in the neighbourhood being of unique interest. Two great sub-parallel ridges of boulder clay, sand, and gravel extend in crescentic shape across a considerable portion of the vale of York, and form the successive terminal moraines of the great glacier which, we know, at some very remote period filled the valley.

IV.—The meeting on July 11th was arranged for the Maltby Woods, Roche Abbey, and the district bordering on Nottinghamshire. The scientific results were most noticeable in the excellent work done in diatoms and the micro-fauna of the district.

V.—On August 3rd (the 126th meeting of the Union), Staithes and the neighbouring coast was visited, from Runswick Bay to

Boulby Cliff. The principal features were the strength of the geological contingent; and the list of birds, noted by Mr. McLean, who is a local resident, included over one hundred species.

VI.—The sixth and last meeting was the 'Fungus Foray' at Selby, September 19th to 22nd. This was the most successful ever held by the Union. Every member of the Yorkshire Mycological Committee was there; also several visitors from other parts of England.

Altogether, we have great reason to congratulate ourselves on the success of the excursions for 1896.

The year now ended has been a very eventful one in the history of the Union from the fact that we have lost by death three Ex-Presidents within eighteen months, whereas we had not lost one for the nineteen previous years. We have also to deplore the death of Mr. Thomas Hick, Chairman of the Fossil Flora Committee, and three distinguished life-members.

The first of the Ex-Presidents was Professor William Crawford Williamson, one of the oldest Fellows of the Royal Society, and Professor of Natural History and Geology at Owens College. There are few men, his contemporaries, who have done more solid work. There is an excellent memoir of him in our journal.

The next to leave us was Henry Seebohm, the distinguished ornithologist; he died November 26th, 1895. His travels and works 'Siberia in Europe' and 'Siberia in Asia,' also his 'History of British Birds' and other books, and numerous papers in 'The Ibis' and other journals, have placed him in the front rank of European ornithologists. He was a most generous and kind-hearted man, and the whole of his magnificent collection of birds was bequeathed to the British Museum, and is now national property.

The third Ex-President was one who filled the President's chair in 1891, Professor A. H. Green, F.R.S., Professor of Geology at the University of Oxford. He was in the very front rank of European geologists; author of the classical work on the Yorkshire coal-field. He was, moreover, one of the most genial and amiable of men, always ready to dispense his vast stores of erudition for the benefit of local workers and local societies.

In Lord Lilford we lost a most valuable life-member. In his splendid works, 'The Illustrations of British Birds,' and the magnificent volumes of the 'Birds of Northamptonshire,' there has been built up a monument to his memory nobler and more enduring than any of brass or marble; and we should not overlook the fact in considering all this excellent work, that it was often carried forward under the shadow of great personal suffering, in many

patience and noble endurance till the end came. In these days of useless compilation, his writings have a special value, as they are the result of his own personal observations. It would be impossible to specify all his numerous acts of liberality to his fellow-workers.

The Rev. H. F. Barnes-Lawrence, of Bridlington, was long a valued member of the Union, his membership only ceasing with his death. We are all deeply indebted to him for the share he had in promoting the first 'Wild Birds Protection Act.'

Although never a member of the Union, I cannot let this opportunity pass by without noticing the death of a well-known Yorkshire naturalist, Peter Inchbald, of Hornsea, who, during the period of his life as a schoolmaster, instilled the love of Natural History into some who have since achieved distinction.

The societies which constitute the Union are thirty six in number, with 2,906 members; a large number, certainly, when we consider the total number of members who attended the meeting of the British Association at Liverpool in September was 3,181, and this included 1,384 associates, local residents who joined for that meeting only.

A large accession of members to the Union itself is very desirable. There must be a great number of people, both in the county and out of it, who are in sympathy with our work, and who would join if the advantages were placed clearly before them.

I now wish to leave these necessary remarks in connection with the Union, and say a few words, first, on a geological subject having reference to the drift deposits of Yorkshire, which are of a most extensive nature. We are aware, as has already been mentioned, that at one period an immense glacier filled the vale of York, and that this central stream of ice was fed by lateral glaciers descending all the chief valleys from Teesdale to Airedale. This main stream extended as far south as the Humber, where it met the Scandinavian ice-stream, which abutted against the whole coast line. The occurrence, in sections of the vale of York moraines, of Shap granite, quartz porphyry, and Scottish granite, indicates the northward extension of the ice-sheet. Its southern extension is marked by the same works. In 1889, I was fortunate in finding a very large boulder of shap granite exposed, after heavy storms, on the Holderness coast, about five hundred yards south of Kilnsea beacon. This was subsequently removed to Mr. Hewetson's garden at Easington, and, at that date, this represented the most southern find of this granite. Within the present year, the Rev. W. Tuckwell, a most indefatigable and hard-working geologist, has informed me of the existence of three boulders of the same in North Lincolnshire; the first and

second on the authority of Mr. T. Sheppard, of Hull; one [illegible] a hill-top near Barton-on-Humber; also a pebble in situ, 18 ft. [illegible] in the boulder-clay cliff of South Ferriby; and a third built [illegible] a Saxon wall of the 10th century at Irby-on-the-Wolds. These other erratics are undoubted indications of a much further extension to the south of the vale of York glacier than is generally supposed.

The downward progress of a glacier depends much on the [illegible] and smoothness of its bed. The movement is more rapid in the centre than on the sides, where the ice abuts on the flanking rocks. The movement has been calculated at 64 inches in the four summer months, and in other cases, at one inch a day. If we had sufficient data, it might be possible to determine how long it would take a block of Shap granite to travel from Shap-fells to Kilnsea in Holderness. It is scarcely probable the Kilnsea boulder was floated to its resting-place.

Those immense crescentic terminal moraines, crossing the vale of York, mark the lines of the successive retreats and pauses of the great glaciers before a slowly-altering climate. Between these the soil is a very tenacious fine warp, probably the bed of an ancient lake, the water being dammed by the more southern moraine. The sucking and holding power of tenacious glacier mud is very remarkable, as was experienced by Mr. Trevor Battye when exploring Dickson's Bay (the death-trap), in Spitsbergen.

There is nothing more magnificent in nature than the sweeping curves of a great glacier. During the present autumn I had opportunities of seeing some of the finest ice-fields and glaciers in Northern Europe. Chief of these, the Svartisen, just north of the Arctic Circle, descended majestically from an ice-field over [illegible] miles in length—a stream of solid ice, some hundreds of feet in thickness, and filling a broad valley. It was, in places, [illegible] covered with new-fallen snow, and its fair white surface broken by parallel lines and curves of stones and rubble, detached, from time to time, from the overhanging rocks; ultimately, to build up the lateral and terminal moraines. In places where the wind, or the perpetual sunshine of the long Arctic summer, has laid bare the ice, the colour is malachite green, and the walls of the crevasses cobalt. But no words, written or spoken, can give the faintest idea of the surpassing loveliness of the tints. At the same time, we remain staggered at the grandeur of the forces which have been the [illegible] instruments in fashioning these northern lands.

From an ice cave at the foot of the glacier there issues a considerable stream of milk-white water, which soon becomes a [illegible] river entering the Fjord a mile below. The intervening ground [illegible]

covered by a series of high parallel ridges like the waves of the Atlantic; these are called the terminal moraines, and mark successive stages of repose when the ice cliff has remained stationary. These moraines are covered with a carpet of Arctic plants of great interest; also willow scrub and Arctic birch (*Betula nana*). What most surprised me was the luxuriance and profusion of more southern plants: yellow blooms of the European globe flower (*Trollius europæus*), masses of rose bay or French willow herb (*Epilobium angustifolium*), meadow sweet (*Spiræa ulmaria*), golden rod (*Solidago virgaurea*), water fig-wort (*Scrophularia aquatica*), field gentian (*Gentiana campestris*), and *Aconitum septentrionale*, also harebells (*Campanula rotundifolia* v. *speciosa*) and tufted vetch (*Vicia cracca*); marvellous for the size of their blooms, colour, and luxuriant growth.

It is impossible to conceive that these shrubs and flowering plants should have migrated to this special locality since the retreat of the glacier. Is it not more probable, from what we now know of the long period during which seeds retain their power of germination, that they may have survived quiescent in the soil, when buried beneath the superincumbent ice cap, again to spring into life under the influence of a loosened soil and sunlight, and that they represent a flora which, before the glacial period, over ran the entire palæarctic regions?

During this ice age, Arctic plants, such as we now find in the north, were present with the musk ox, the reindeer, lemming and snowy owl, as far south as the northern shores of the Mediterranean. This ancient flora must now be sought for in high altitudes; the summits of the mountain ranges of Europe, or in high northern latitudes at the sea level.

In the Yorkshire hills and high moorlands in the north-west of the county still linger some relics of the Arctic age: such as the alpine scurvy-grass (*Cochlearia alpina*), which grows in the greatest profusion on sea cliffs near the North Cape; the Cloudberry (*Rubus chamæmorus*), the Knot-berry of Yorkshire, the 'Noops' of Northumberland, and the Multibœr of Norway: the purple saxifrage (*Saxifraga oppositifolia*), on Ingleborough: the Arctic willow (*Salix arctica*), on Ingleborough, Whernside, and Penyghent: the rose-root (*Sedum rhodiola*), in the same localities, but at the sea level in northern Europe; the European globe flower (*Trollius europæus*); the cow-berry (*Vaccinium vitis-idæa*); in Norway I have seen the ground covered with the clusters of its lovely scarlet berries, and equally beautiful are the leaves after the first touch of frost; *Dryas octopetala*, one Yorkshire station; the plant was everywhere in seed in August, in Arctic Europe, and I found few examples of the large

daisy-like flower with a yellow centre; bird's eye primrose (*Prim... farinosa*); the alpine lady's mantle (*Alchemilla alpina*), with ... having the underparts silky; the bog-bell (*Andromeda pol...*), a familiar plant of the tundras; the exquisite *Smilacina bifolia*, ... the dwarf cornel (*Cornus suecica*), in the Forge valley near ... borough, and Pickering moors; this latter is a very common ... on the low rocky islands and mainland of Arctic Norway. W... I first became acquainted with the cornel, I could not under... how it was that the apparent single flower became in the autu... changed into a cluster of small dull-red berries. The flowers ... very small, and arranged in a terminal umbel, and surrounded ... four large, broad, white, petal-like bracts, which give the appear... of a single flower. Bears are said to be very fond of the ber... and to get fat on them. The localities for these and several ... northern plants will be found in Mr. Arnold Lees' excellent F... West Yorkshire.

There is an obscure little plant common both in Yorkshire a... Lincolnshire, in the shelter of old woodlands and hedge-rows, a ... favourite of mine, for I take it to be a plant of most ancient lineage ... which, in these latitudes, has adapted itself to the changed condi... of a temperate climate; it is known as the tuberous moschatel ... (*Adoxa*). Its medicinal powers are said to be great.

Adoxa loves the greenwood shade,
There, waving through the verdant glade,
Her scented seeds she strews.

This plant is found near the tops of Highland mountains ... grows in sheltered spots in the bleak, treeless tundras of the north ... and has recently been found growing in Kolguev, an island in the ... Arctic seas.

There are three Norwegian plants which reach Faroe and stop ... there: these are *Ranunculus nivalis*, *Kœnigia islandica*, and *Saxifraga ... tricuspidata*. *Arenaria norvegica* touches the Shetlands, and the ... lovely Norwegian primrose (*Primula farinosa*) reaches Caithness ... Sutherlandshire. These stragglers are suggestive of the old land ... land extension, which at some remote time bridged the North Sea.

The abundance in species, and the glory in blossom of the Arctic ... flora, must be seen to be fully understood and appreciated. Even ... in the highest latitudes, amongst almost perpetual snow, plant ... abounds where patches of soil become exposed. In the voyage of ... the 'Alert' and 'Discovery,' between the parallels of 70 deg. and ... 80 deg. north latitude, sixty species of flowering plants were recorded ... and five species of handsome butterflies.

To those botanists who have spent weeks of their holidays ... searching the summits of the Yorkshire hills and Scottish mountains ...

for the scattered remnants of the old glacial flora, the flowers, fruits, exquisite tinted lichens, and the mosses, on the Arctic tundras, come as a revelation. For in the space of a very few square yards it is possible to find a dozen rare and much prized plants, and many others not found in Britain.

One most striking feature of the tundra is the extraordinary abundance and fertility of the small fruit-bearing plants. The delicious cloudberry, with its terminal orange fruit, gives quite a colour to the ground, it is the commonest tundra plant. On the Yorkshire moors it is a shy fruit-bearer. Then there is a perfect network of the cranberry or crakeberry, the bluish-black berries in excess of the leaves; black bearberry (*Arctostaphylos alpina*); the scarlet clusters of the cowberry; the dull-red of *Cornus suecica*; wortleberry; and the larger fruit of the bog wortleberry (*Vaccinium uliginosum*); red berries of the low-growing cranberry (exported in great quantities from Russia); the black-berries, with a glaucous bloom, in dense clusters of the dwarf juniper (*Juniperus nana*). All this profusion of small fruit is not wasted in these wilds, for in a few weeks after ripening, it is buried deep in snow, remaining sweet and good, and in the spring, when the snow melts, and before insect food is available, supplies an inexhaustible source of food to the tens of thousands of migratory birds, which go to nest on the bare, wind-swept, treeless tundras of the Northland.

On the same ground as the cloudberry, was a plant in growth and appearance much the same, a short, erect, slender, wiry stem, and ternate leaves, which fade to a wealth of scarlet and purple in autumn. Each little stem is crowned with a lovely deep rose-coloured blossom, but I found no berry, for it requires even a higher latitude than the mainland of Sub-Arctic Europe to produce and ripen fruit of the Arctic brambie (*Rubus arcticus*).

Before touching on the subject of Yorkshire ornithology I should like to make a few remarks on a matter which, so far, has not received the attention it deserves. I allude to the deeply interesting discoveries, chiefly made through the researches of Mr. H. B. Hewetson, President of the Leeds Naturalists' Club, in connection with the kitchen-middens, tumuli and forest-bed in the south-eastern corner of Holderness.

The forest-bed between Kilnsea and Easington, which is represented by a thin seam of peat and vegetable matter resting on clay, has during recent years, occasionally been exposed by the denudation of the coast and shifting of the beach. The fragments of trees exposed have been identified with alder, birch, willow, hazel, bird-cherry, and oak; one trunk of the latter had a woodpecker's hole in it. The bed

contains many hazel-nuts, entire or as shells; these are grooved by the teeth of a small, also a large, rodent, probably mice and squirrels. The animal remains, recently found, are mammoth, old and young: *Bos primigenius*—the Urus of Cæsar—a male, a magnificent skull and horn cores; Irish elk; large race of fallow deer; red deer; reindeer; two species of horse; otter, an entire skull; wolf; wild boar; probably hyena, as some large shoulder-blades and ribs of an ox are bitten through in a manner of which only these strong-jawed brutes are capable. Some other remains are, I think, referable to *Bison priscus*—the European bison (erroneously called Aurochs), now only found wild in the Bialowieza Forest in Russia (the hunting ground of the ancient kings of Poland), where, although every care is taken to preserve them, they have dwindled down from 1,900 in 1856, to barely 500 at the present time; also in the Caucasus.

The presence of man is shewn by boughs of trees partly cut through, or nicked and sharpened stakes, and an occasional worked flint. The tumuli on the same horizon, for they rest on the clay bed, indicate central interments, either by cremation or in which the corpse has been doubled up in a short chest of rough-shaped logs; and through the whole of the mound are flints more or less worked, those nearest the body being the most perfect in workmanship. The south and east slopes of the tumuli often reveal, at no great depth, coarse urns filled with black soil and fragments of bone; these are cinerary urns, inserted long afterwards, probably during the Roman period. The whole of this south-eastern corner of Holderness is full of interest. It is highly probable that, at the time of these earliest interments, referable to Neolithic man, there was no North Sea as we know it; indeed, subsequent to the new stone age, the spiral, star, and butterfly ornamentation found on certain chalk objects in a Yorkshire barrow—presumably of the bronze age—are, according to Mr. Arthur J. Evans, suggestive of some ancient line of communication (and, I think, probably a land one) with Mycenæ and the Nile valley. There is no more interesting study than the trade-lines of the early world. By what routes did amber from the shores of the Baltic spread over and far beyond Europe, Irish gold (in 1796 the gold-washings of County Wicklow amounted to £10,000) and Cornish tin from west to east, jade from east to west, the large panther-cowry of the Indian Ocean to the Swiss lake-dweller? Glass studs from Yorkshire barrows, probably used in ornamentation, are not to be distinguished from those taken from Egyptian tombs.

There are evidences of very considerable oscillations of temperature, and a reversion, after the era of the forest bed, to a much colder

climate. This is suggested by leaves of the Arctic birch (*Betula nana*) in the laminated peaty beds of Holmpton cliff, and the Arctic willow at Bridlington from the same horizon. In gravels of Kelsey Hill, remains of the walrus and reindeer have been found; and great numbers of a shell (*Corbicula fluminalis*), now extinct in Europe, but living in the Nile, the Lake of Gennesareth, and rivers of Asia Minor. Much yet remains to be worked out by the Geologist and Anthropologist in connection with Holderness.

Messrs. Clarke and Roebuck in their 'Vertebrate Fauna of Yorkshire,' published in 1881, includes a total avi-fauna for the County of 307 species. These include 120 resident and summer visitors, 47 winter visitors, and 140 periodical, casual, or accidental visitors—a total of 307. Since this, no less than 22 species have been added to the list, chiefly through the much greater attention given in recent years to the immigration of birds, particularly the smaller species, in the spring and autumn. A revised list of Yorkshire birds should now include:

1. *Turdus torquatus* var. *alpestris*. Ring-Ouzel. An occasional immigrant at Spurn in the late autumn.
2. *Saxicola deserti*. Desert Wheatear. Easington-in-Holderness.
3. *Saxicola stapazina*. Black-throated Chat. Spurn.
4. *Cyanecula suecica*. Arctic Blue-throat. Spurn.
5. *Sylvia nisoria*. Barred Warbler. Easington and Kilnsea.
6. *Phylloscopus superciliosus*. Yellow-browed Warbler. Beverley.
7. *Phylloscopus borealis*. Arctic Willow Wren. Flamborough. Doubtful; may perhaps have been referable to some other species of Leaf Warbler.
8. *Hypolais icterina*. Icterine Warbler. Easington.
9. *Muscicapa parva*. Red-breasted Flycatcher. Scarborough.
10. *Zonotrichia albicollis*. American White-throated Sparrow. Near Hull.
11. *Emberiza rustica*. Rustic Bunting. Easington.
12. *Emberiza cioides*. Brandt's Siberian Bunting. Flamborough.
13. *Acanthis hornemanni*. Greenland Redpoll. Kilnsea and Easington.
14. *Pyrrhula major*. Russian or Northern Bullfinch. Kilnsea and Hunmanby.
15. *Loxia bifasciata*. Two-barred Crossbill. Easington.
16. *Anthus rupestris*. Scandinavian Rock-pipit. Holderness coast.
17. *Motacilla flava*. Blue-headed Wagtail. Easington.
18. *Sturnus unicolor*. Sardinian Starling. Near Howden.
19. *Turtur orientalis*. Eastern Turtledove. Scarborough.
20. *Otis macqueeni*. Macqueen's Bustard. Near Marske, 1892;

Easington, Oct. 18, 1896.

21. *Chen hyperboreus.* Snow Goose. Near Beverley.
22. *Uria bruennichi.* Brünnich's Guillemot. Scarborough and Fl

Altogether now a total of 329 species—a splendid list. Severa these during the same period have also occurred on the Lincolnsh side of the Humber, also four which so far have not been record for Yorkshire. These are the American Red-breasted Snipe (*Ma rhamphus griseus*), Indian Roller (*Coracias indicus*), Water Pi (*Anthus spipoletta*), and this year, in September, the Greenish Tr Warbler (*Phylloscopus viridanus*) shot on the Lincolnshire coast. near North Cotes, by Mr. G. H. Caton Haigh. This is an Asiatic specie which bears a strong resemblance to the Arctic Willow Wren, the bi however, being much smaller. This is the third occurrence f Europe, having previously twice occurred on Heligoland.

In the autumn of 1877, I commenced taking observations on the migration of birds, by sending schedules and letters of instruction t the lighthouses on the north-east coast, from Spurn to the Tees mouth. The result of the first enquiry was interesting from the number of Blackbirds recorded at Spurn and Flamborough in November, more particularly in the last week of that month. In 1879, in conjunction with Mr. Harvie-Brown, we worked the wh east coast of Great Britain, from the Shetlands to the Engli Channel. From 1880 to 1887 inclusive, the work was undertake by a Committee of the British Association, for all the coasts of Great Britain and Ireland and outlying islands, and annual reports were published.

In 1888, one of our Committee—Mr. Wm. Eagle Clarke, former Secretary of this Union—was instructed to make a digest of the whole of the information furnished to the Committee, by an examination de novo of the whole of the vast mass of accumulated schedules. This work, after immense labour, was only completed in the present year, and (in Mr. Clarke's absence) presented and read by me, as Secretary, at the Liverpool meeting of the Association in September. 'The Times,' in commenting upon the work done at this meeting, says: 'The long report by Mr. Eagle Clarke, on the migration of birds, was one of the most valuable pieces of solid work presented to the section.'

I will now, very briefly, give a few of the most important conclusions arrived at so far as they concern the east coast of Great Britain, but especially the Yorkshire coast.

There are two great lines of immigration on the east coast of Great Britain. The first, between Britain and Northern Continental Europe. The birds which travel by this line are such as nest in Northern Europe. In the autumn, the initial movement com-

menees in July, and continues to the middle of November; they pass the North Sea in a S.W. direction in a broad front, one wing of which touches the Shetlands, and the other the north coast of Norfolk.

Then there is the east to west route, chiefly used by day migrants, and composed of birds such as are generally ranked as partial migrants. This immigration commences late in September, across the more southern parts of the North Sea, from E. to W. or S.E. to N.W., and often covers the coast line as far north as the Tees mouth and beyond; another stream of this E. to W. movement passes along the south coast, and, finally, into south-east Ireland, and further still, as in the case of larks, which are shown to travel northward, up the Irish Channel, to the Hebrides. Again, from the end of July to the middle of November, there is a great emigration of both summer visitors and partial migrants from N.W. to S.E., from the coasts of the south-eastern counties; these emigrants, in many instanees, being composed of the very same species which are, at the same time, entering the country by the E. to W. route.

In the spring, birds return from the same sections of the eastern seaboard, to their summer quarters, as witnessed their arrival in the spring.

In the autumn, we are aware that enormous numbers of various birds pass Heligoland by an E. to W. route, but we have no proof that they come across the North Sea in the same latitude, although such is occasionally possible.

My own experience, from living the greater part of my life on the east coast, is that birds do not use this east to west route, or the reverse when returning, north of parallel of latitude 54 deg. This is conterminous with the line across the North Sea, dividing the 20 fathom from the 50-fathom area, and probably marks the extension of the old land line, giving some support to the theory of Professor Palmén, that birds continue to follow old coast lines. There can be no doubt birds contracted the habit of migration long before the North Sea had been formed; gradually the land disappeared, and the sea took its place, but the habit once formed has continued to the present, perhaps by a sense of direction unconsciously exercised.

Time would not allow me to enter more fully into Mr. Clarke's digest, which fills a closely-printed pamphlet of twenty-seven pages, every line of which is worthy of consideration. It cannot be doubted that, henceforth, as regards the British islands, there is now established a firm basis on which may rest a sound, a proper conception of many of the phenomena of British migration. Much yet remains to be extracted from the enormous mass of information now reduced to order.

July 1897.

There are many phenomena connected with migration, concerning which we require much more knowledge. For instance, the height at which birds travel, and under what conditions; closely connected with this is the question of speed; much difference of opinion exists amongst ornithologists on the subject: some hold that at a great altitude, three or four miles above the earth, birds are capable of progressing greatly beyond their ordinary and normal flight. Then we want to know, do the young invariably come in advance of the old in the autumn migration? Herr Gätke's observations, ranging over half-a-century, are strongly indicative that this is the case in the majority of instances.

The migrations of the lemming in Norway have been often quoted to illustrate what has been called misdirected instinct. Periodically, in certain years, these little rodents increase to such a degree that the superfluous population of the fells migrate in immense numbers to the lower valleys and coasts, and then, on the first calm day, swim westward out to sea, presumably to the land which has gone down, and it is said that all these vast hosts perish with their heads to the west. Once, a ship off the mouth of the Hardanger Fjord is reported to have sailed for some hours through these migrating swarms. It is a very pretty story, and one that always interests an audience, but I am afraid the facts, and deductions therefrom, are not borne out on enquiry. In the first place, it was a steamboat and not a ship, and the time was about twenty minutes. The mouth of the Hardanger is a long distance from the open sea—twenty-five to thirty miles at least, and many, both small and large, islands intervene. Lemmings are known to swim across fjords and arms of the sea, during their migrations, with all the ease of a water-vole, other animals do the same. On one night in August a herd of reindeer, after midnight, swam across a channel, passing just in front of our steamboat. I can find no evidence that the lemming swims from the outside islands into the open sea—the north Atlantic; of course, immense numbers perish on these emigrations, devoured by owls, hawks, foxes, cetaceans of various sorts, gulls and other sea-fowl; sharks and large fish take their share; the reindeer also will devour them wholesale, and the stomach of these deer has been found filled with their remains.

When at Vadsö the second week in August, birds, particularly the waders, had already collected for migration. I observed flocks of greenshank, golden plover, etc., along the coast. And I think one of the most beautiful sights, as an ornithologist, which I have ever seen, was a flock of 150 to 200 ruffs and reeves in a small wet meadow near the edge of the moor above Vadsö: their tameness

was marvellous, running to and fro, and picking up some small object which they found amongst the newly-mown grass; when put up they rose in a body, but only to circle round near the ground, alight again, and instantly renew their search for food. A pretty little stream or beck ran through this meadow, fringed with willow scrub and *Comarum palustre* in flower; the scrub abounded with Lapp buntings, red-throated pipits, and blue-throats—it was a charming spot. Another interesting sight was the numerous flocks of phalarope in Vardö and Vadsö harbour, and in the Jar fjord; they sat on the water like small butter-bowls, each little head, as they paddled to and fro, nodding incessantly; they also showed great tameness, even keeping the water when only a few yards beyond the sweep of oars of passing boats or surrounded by shipping. All these congregated birds, about to leave their nesting quarters, were not driven south by lowering temperature or lack of food: they left because the duties of incubation were over, and their time for moving had arrived.

Certain writers on ornithology in recent years have indulged in speculations on the possible origin of life, as we now see it on the globe, on some great and at present submerged Polar continent, and in this way have endeavoured to account for the dispersion and differentiation of birds along the various coasts of the Old and New World, by ages of excessive cold—that is, glacial epochs—alternating with mild periods. The most recent discoveries in the Arctic area entirely fail to support these theories. The Jackson-Harmsworth expedition, the long ice-wanderings of Dr. Nansen and his colleague the drift of the Fram, all point to one conclusion: that north of Franz Joseph Land stretches towards the Pole a vast ocean—the abode of great cuttle fish—the Queen Victoria Sea, of almost immeasurable depth, which fact alone is entirely against any former Polar continent.

Drayton, in the Polyolbion, song 28, says of Yorkshire: 'A Kingdom that doth seem.' And this is no exaggeration when we consider that Yorkshire contains 3,882,851 acres, or nearly two millions more than the next largest county, Lincolnshire. I need scarcely say there is no other county which can show such a diversity of scenery, or so magnificent a seaboard. In fact Yorkshire, if cut off from all the rest of the world, would practically be self-supporting—a kingdom in itself—containing within her bounds everything that can contribute to the comfort, welfare, and even luxury of mankind.

Not less remarkable are the glorious relics of a past history—roads, camps, and battlefields, 'howes,' barrows and entrenchments, Norman castles, noble ruins of great religious houses—these poems

in stone—Fountains, Bolton, Rievaulx, Kirkstall, Byland, and Whitby—again the richest of Ecclesiastical architecture in York, Ripon, Beverley, Selby, and many another priceless monument of bygone ages.

Not less noticeable, when we consider it, are the traces of successive waves of the various races, which from the most remote period—long before the dawn of history—from paleolithic man downwards to the close of this Nineteenth Century, have occupied the soil, and who have loved, and fought, and bled, and in turn passed into the unknown country, from the very land—a portion of which we occupy this evening.

In considering the present position of man, we are apt too often to talk of a gradual advance from the lowest savagery to the highest civilisation. This is only true to a certain extent. Man, or some sections of mankind, have advanced rapidly—most rapidly—on certain lines; and the cultivated and intellectual European of to-day is an enormous advance on the primitive hunter of the Wold. Yet there are races which, in the long procession of the ages, have stood absolutely still. The world has swept past them in the race of centuries, and left them stranded in a back eddy. There are tribes yet, and many of them, who have scarcely emerged from the stone age. Neolithic man, in his first communings with nature, when he first felt her magic touch—in the days before writing—scratched on the tusks of the mammoth, or horns of the reindeer, the likeness of those animals. So perfect are these sketches that we are astonished at the skill of the early Landseers and Bonheurs of the race. At the present day, visit a camp of Lapps or Samoyedes, and we are offered for sale pipes, spoons, and other articles of bone, on which are etched figures of precisely the same character. The hoofless reindeer, with a prodigality of horn. If a horse is delineated it is the clump-headed, hog-maned, rat-tailed wild horse or 'Kiang' of the Asian steppes—the primitive horse of Europe. Immeasurable still remains the distance between the dwarfs of the African forests—the Bushmen—feeders on wild fruits, reptiles, and insects—whose language is a series of grunts and clicks; the extinct Tasmanian, and the audience whom it is my privilege to address this evening.

And yet it has not been all gain; there is such a word as devolution, as well as evolution. Ancient man was, by force of his surroundings and habits, a healthy man; the weakest died off, the strongest survived to die of old age, or wounds inflicted by wild beasts or foes in battle. He knew and cared nothing for heredity, or of the many ills which flesh is now heir to. A skull, taken from a Yorkshire barrow, shows a flat palate, a broad and deep lower jaw, suggestive of former powerful muscular attachments; teeth (in old

skulls) regularly worn down. The skull of the British chieftain, buried in a dug-out oak in the Grisethorpe barrow, and disinterred in 1835 (probably belonging to the transition period between the neolithic and bronze ages), is suggestive of the highest capacity and intellectual power—a veritable ruler of men.

Now, as medical men know, we too often find weakly-developed facial muscles, narrow chins, high-pointed palates, mis-shapen and prematurely-decayed teeth, contracted nostrils, throat affections, and deafness: centuries of soft, warm, cooked foods, and easy mastication, have perhaps had their share in the production and perpetuation of this type.

The time is drawing near when the midnight clocks will strike the last hour of this wondrous mother-age—the 19th century. Practically we are now standing between a dead past and a living future, and, on looking back to the early days of this century, even the least thoughtful amongst us cannot fail to be struck with the enormous strides of science and the advances in mechanical invention, and their appliance to the service of men. Not the least are the means for lightning exchange of thought, and the extraordinary facilities given for cheap and rapid movement from place to place, so that there is little excuse for any not seeing something of the world we live in; when talking of progression I must not overlook —perhaps not the least of these remarkable and useful inventions— the bicycle, which has helped so many of our members to attend the Field Meetings.

There has been a steady and continuously-progressive advance in the material comfort and prosperity of all classes. The art of healing and alleviating the sufferings of mankind, rendering painless the most protracted and difficult operations, has made astonishing strides in the last half century; I need go no further than your own splendid Medical School in this city, which has done, and is doing, so much to unravel the nature and origin of disease. Again, we have the recent marvellous advances in photography, by which we learn of myriad stars of which otherwise we must have remained in ignorance. The discovery of the Röntgen rays, which, in some very near future, may make it possible to locate and diagnose the character of all internal diseases and injuries, both in man and beast, is capable of expansion, indeed, we already know that the rays are capable of producing extreme irritation in external living tissues, and probably also internal.

The imperfect human eye takes in only some portion of the waves which exist in the ether. A knowledge of the short waves below and the long waves above our vision may be obtained through [illegible]

special instrumental appliances. It is a remarkable fact that the ultra-violet rays, although not visible to ourselves, are apparently seen by some insects. From which we may learn that—

> Other eyes than ours
> Were made to look on flowers;
> Eyes of small birds, and insects small
> . . . . .
> The tiniest living thing
> That soars on feathered wing,
> Or crawls among the long grass out of sight,
> Has just as good a right
> To its appointed portion of delight,
> As any King.

Education, and a knowledge of what man has done in the past, is not now the prerogative of the wealthy, but has been brought within reach and understanding of all classes, and every individual whose brain capacity is equal to the reception. Your noble Victoria University—the child of three cities—is one of the glories of our great Queen's reign. And, in dwelling on all these matters, remember there is no such word as *finality*.

In conclusion, I must say a word of congratulation on the great increase, everywhere, of societies for the study of Natural History. We can scarcely estimate the good they are doing in advancing amongst all classes a knowledge of this marvellous and beautiful planet, or what a privilege and advantage it is to be a member. After all, there is no book like the book of Nature; this idea was charmingly expressed by Professor Flinders Petrie, in his recent lecture delivered in Liverpool, 'Man before writing,' when he said 'that the awakening of this century has begun to teach us that the senses cannot grow and feed the mind when the fetters of words are allowed to hold them back from the living touch of Nature. . . . 'It is the man who is in touch with things, and not with deadening words; it is the man who learns from the breadth of Nature, and not from the weak and broken transcript of it in the words of others; it is the man, before writing, who is the master of thought and sight, and the unfailing source from which literature may draw its health and life.'

It is a subject of much regret that our forefathers did not, as a rule, leave fuller records of their natural surroundings—the beasts, birds, fishes, and flowers; these, a century ago, must have been more numerous both in species and number. There is, I think, no doubt that those who follow will blame us for inattention in these matters. Notwithstanding the increase of population, the encroachment of great cities on the country, and increased area under cultivation, there is much left to examine, and much left to learn from. Let us take heed then to gather up the fragments that remain, that nothing be lost

NATURAL HISTORY NOTES.

WHAT TO NOTE AND HOW TO MAKE NOTES.

GREGORY O. BENONI.

No man knows how much the world has lost by some of her greatest sons not having the gift or knack—for it is very often only the latter—of jotting down their experiences and observations in black and white. When we consider the time we all waste in trifling, a few moments occupied daily in writing would never be missed. But what should we have in return? The experiences of the man of action, the stories of the talker, the bon-mots of our convivial and versatile companion at our last field meeting, who was the soul and life of the whole affair, and the notes of the observant naturalist, whose opportunity of seeing what is best worth recording is infinitely greater than any the late Richard Jefferies ever had, if his power of clothing his memories in living language may never be comparable with that 'nature poet's' wonderful gift.

Scores of keen-minded men see things almost daily which are worthy of permanent record—the field-mouse in the hedge stealing hip and haw, when in a prolonged frost the snow wraps the ground with that thick white mantle so destructive to animal and bird life—or the young oak thrusting up from its abandoned home and store after a mild winter, as he stalks his rabbits down the wood side. But few, how few, realise the truly valuable facts amongst the crowd of things they see, or take the trouble, if they know how, to make a note of them. We mean to make notes that will be of value in refreshing the memory at any time, or for future publication.

What to note is the difficulty of all young naturalists. Mere bare lists in any department of natural history, without any annotations, are of comparatively little value: at most they only appeal to workers at geographical distribution. The fact of such species being found in a given spot is recorded, but the nexus which gives the sparkling touch of life to the thing recorded is wanting. For instance, the young botanist, who knows his plants fairly well, in Yorkshire is adding hardly anything to our knowledge of nature by bare lists of species which grow in his neighbourhood. But let him take the new drift maps, published by the Geological Survey, in his hand as he walks, and accurately note the changing flora with the varying outcrops and soils he passes over, and he will just give us that connecting link which makes his work live. If the elevation, humidity, porosity, and impenetrability of the surface has nothing to do with the distribution, he has discovered the chemistry of the soil has, and a quantitative and qualitative analysis of the plants will

show it. He has pointed out to the chemist where his work has to begin and what the problem is he must settle. Had as much been known as might be discovered with a little trouble on this very question of geological distribution, thousands of acres would not have been sown down to permanent pasture with expensive seeds, which the land could not support till the passage of years had accumulated its fertility. When a young lady drew a lovely picture of the heath-covered wolds of Lincolnshire the other day in a magazine article she had just missed the nexus, which was all important to the truth, if not the loveliness of her description. Our wolds are chalk, but our English heaths cannot stand a particle of lime in their love for silica. Our wind-blown sandhills and commons are clothed with their fair pink bells, and so to a perfervid but inaccurate mind the chalk hills must be, but nature having ordained otherwise it is not so. The point to catch and note for ever is the nexus or connecting link between the thing observed or the action seen and its environment. Nothing is there by accident, nothing is done in nature without a motive, an all-sufficient reason. When we observed all the birds flying in one direction on Salisbury Plain, as if a bush fire were behind them, we did not doubt there was a very good reason, and found it later in the 'dew-pond' at the foot of Sidbury Hill. The only open water for miles on that barrow-strown height was frequented by all the birds and animals round. But the fox and rat, rabbit and hare, did not visit the spot at the same time of day, nor the different species of birds drink together, but we made no notes, and missed the nexus, and are ignorant why to this moment. The water was full of newts and lower life forms, and if we remember accurately a solitary species of *Potamogeton*, but that was not surprising, as these ponds are sometimes frequented by wild fowl.

But the point to notice is that what we did not find out we missed for good, first, because we did not picture before our minds the connecting link and work till it was discovered; and, secondly, *we did not make any accurate notes* at the time for future study. The droppings of birds were on the low firm railings which kept the horses and cattle from the water, while the sheep could pass under and drink their fill; but we idly tapped them into the water as we watched the newts and kept a pair of wood pigeons from their evening drink or bath, regardless of the undigested seeds they contained. We never made a note of what was growing round the pond to see if it differed from the surrounding herbage, though we noted how frequently the birds left droppings after drinking. The stupidity of these lost opportunities, how mad it makes one, in one's

future work! Sidbury Hill stands, on or just beyond the family property of the late Sir John Astley, of sporting fame, and this suggests an incident of observation which only required an accurate note to have made it of value. Late one day he shot a wood pigeon at Elsham, in Lincolnshire, with such a distended crop that he could not help noticing it. Opening it, he found it not only remarkably full, but was also struck by the number of the species of seeds. These were sown in a flowerpot of the largest size and placed in the forcing-house. A full and varied crop of the weeds of our stubbles was the reward of his care, but no botanist was called in to name the species and work out their numerical relation, and so the value of the experiment was lost for want of an accurate note.

Note-making is the simplest thing in the world, far simpler than finding material worthy of permanent record, as every hard-working field naturalist knows to his cost. What days and weeks have we all spent fruitlessly on the look-out for something new, when it was only our own stupidity which prevented us seeing what was just under our noses? Though we knew water plants have a wider distribution than land plants, we had to visit a deep unfrozen spring twenty times in the great frost of 1895 before the bright green foliage struck our mind's eye, and it flashed into our vacant organ that the deep warm springs in the north, and by contrast the deep cool springs of the south, could keep an uniform temperature in a limited area and preserve a flora and its attendant life, which would become a centre of distribution should the climate change to greater warmth or cold. We must brighten and polish up our faculties in the field if we would find plenty of material worthy of our note-books. An unknown quantity of unobserved connections lie around us the moment we leave our doors; if we do not find them **some one else will.**

How to make notes is our next point. If you have not invented a plan—a good one, mind you, of your own—try this one; it is perhaps the simplest and most effective yet discovered. We all have our favourite books, even when we get better: Bell's *Quadrupeds*, 2nd ed., and Yarrell's *Birds*, 4th ed., are ours. Now, for example, you want to make a note of the long-tailed field mouse. Take a half sheet of ordinary note-paper and write the number of Bell's page 293 in the left-hand corner, then the English or Latin name, or both if you like, opposite. Underline these names, and in the right-hand corner add the figure 1 to signify this is the first page devoted to this species. Then make your notes, carefully recording place, date, and fact, or anything you consider important to notice. In this printed sketch the underlined parts are reproduced in *italics*.

July 1897.

293. *Mus sylvaticus* L. *Long-tailed Field Mouse.*

Bottesford, Lincs., 7.11.69. Dug out nest. There was a [illegible] bolt. Had stored acorns, nuts, and wheat.

Cadney, Lincs., 24.9.93. Watched one carrying wheat to its nest.

Harrington, Northamps., 8.7.89. Young oak springing up from deserted winter store in field by Larkland Wood.

If we are dealing with our bird-notes we work just the same.

3
320. *Scolopax rusticola* L. *Woodcock.*

Broughton Wood, Lincs., 1872. Very plentiful this year, I hear.

The same. 1876. First seen 18.10.76.

Harrington, Northamps. Big fall in 1870, Mr. Cheney told me, after rough N.E. winds.

Cadney, Lincs., 1894. Watched one through hedge of oak wood turning over the dead leaves and eating worms, through field-glass.

The left-hand figures refer to Yarrell, volume 3, page 320. When the notes accumulate a little case of deal, 12 in. long, 8 in. wide and 3 in. deep, stained throughout but varnished only on the outside, keeps them neatly together, in the order of the left-hand numbers, while at the same time they may be turned over like the leaves of a book to find the sheet required, after the general index of Bell or Yarrell has been first consulted to give the right number. If a page gets damaged by mistakes or an accident it can easily be re-copied without spoiling the look of the whole series of notes, as is too often the case if a book is used. It is also much easier to write on sheets than in a book.

A friend of the cynical order, who knows his own foibles as well as he sees other men's, suggested that note-paper is a handy size for illustrations, and pointed out how they enrich any collection of notes. He enclosed one, as a specimen of what these should be like—a sketch of a bird shot with an ounce of water instead of lead. He maintained he had never heard of water-shooting till we told him how to proceed. Whether in his hands it has been successful in saving damage to the plumage of delicate birds we cannot say, as his cartoon is the last communication we have had on the subject.

In another paper we purpose to make a selection from the notes of a North Lincolnshire naturalist to illustrate how interesting these casual jottings, which only take a few minutes to carefully observe and record, become as facts accumulate in the passage of years.

ON THE HEPATICÆ AND MUSCI OF WESTMORLAND.

GEORGE STABLER,
Levens, Milnthorpe, Westmorland.

FIFTH PAPER.

For previous papers see 'The Naturalist,' Oct. 1888, pp. 313-320; May 1896, pp. 133-140; Sept. 1896, pp. 277-284; and Jan. 1897, pp. 5-12.

188. **Tetraplodon bryoides** (Zoega) Lindb. *Tetraplodon mnioides* (Sw.). Meldon Hill (R. Spruce, 1843); Helvellyn (Borrer); Foulshaw Moss, on the bones and fur of a hare (Barnes and Stabler, 1869); Witherslack Moss (1885); Hill Bell; Stainmoor (1890); Helvellyn (Miss Wright). [On summit of Sca Fell Pike, on bone of a sheep; Barnes and Stabler, 1870].

Fam. *ŒDIPODIACEÆ.*

189. **Œdipodium Griffithii** (Dicks.) Schwægr. 'Bow Fell, Fairfield, and High Raise, in the crevices of rocks; not rare' (W. Borrer, 1846). Helvellyn and Hill Bell (Clowes); Mardale (Barnes); Langdale (1875); Barbon Fell; Red Screes; Grisedale Pass, on Seat Sandal.

Fam. *FUNARIACEÆ.*

190. **Amblyodon dealbatus** (Dicks.) P. Beauv. On the side of a ditch (on clay), Heversham Moss (J. M. Barnes, 1870). I have since gathered it in the same place. [On the west side of Clougha, near Lancaster (1881)].

191. **Physcomitrium pyriforme** (L.) Brid. In fields near Bridge End, Levens (Barnes and Stabler, 1868); Dallam Tower Park (Barnes and Stabler); on sides of ditches, Levens Moss (1868); Barrow Field.

192. **Funaria obtusa** (Dicks.) Lindb. *Physcomitrium ericetorum* Bry. Brit. Caldron Snout (Dr. Spruce, 1843); Barrow Field (Barnes, 1868); Hill Bell (1868); Grayrigg Forest (1868); Windermere; Harter Fell; near Kentmere Hall; Mardale.

193. **Funaria fascicularis** (Dicks.) Schpr. In cultivated field, Heversham Head (Barnes and Stabler, 1868); Milnthorpe (Barnes, 1870); Staveley (1868); Brettargh Holt, Levens; Brigsteer (1868).

194. **Funaria attenuata** (Dicks.) Lindb. *Entosthodon Templetoni* (Schwægr.). On moist banks, Loughrigg Fell (J. Nowell, 1859); Fairfield (Barnes, 1868); Patterdale; by the shores of Haweswater, Mardale; Hartsop (1878); Kentmere (Binstead).

195. **Funaria calcarea** Wahl. Plentiful about Levens (Barnes and Stabler, 1868); Whitbarrow (Clowes); Sizergh Fell; Heversham Head.

196. **Funaria hygrometrica** (L.) Sibth. Very common everywhere. Whitbarrow Woods (Gough); Foulshaw (Barnes); Levens; Mallerstang.

Fam. *BRYACEÆ.*

197. **Leptobryum pyriforme** (L.) Wils. Fruiting finely on Meathop Marsh, on sand (Barnes and Stabler, 1868).

198. **Pohlia acuminata** Hornsch. *Webera acuminata.* 'Eastern precipices of Fairfield, between the summit and Rydal Head' (W. Borrer); Helvellyn and High Street above Blea Water (Rev. A. Ley, 1880).

199. **Pohlia elongata** Hedw. Helvellyn (Borrer, 1810); Fairfield (Borrer, 1844); Brothers' Water, Patterdale (J. Sidebotham, 1844); Longsleddale (T. Gough); Langdale (J. M. Barnes and G. Stabler, 1875); Barbon Fell; Kentmere; Grisedale Pass; Ferney Green, Windermere (Clowes).

200. **Pohlia cruda** (L.) Lindb. 'In sylvis circa Rydall in comitatu Westmorlandico,' Hudson's Flora Anglica, A.D. 1778; Scawdale Fell, Patterdale (Sidebotham, 1845); Red Screes and Blea Water (F. Clowes, 1855); Caldron Snout (J. G. Baker); Swindale (J. M. Barnes, 1868); Naddle Forest (1878); Red Tarn, under Helvellyn (1886); Deep Ghyll, Wildboar Fell (1888).

201. **Pohlia nutans** (Schreb.) Lindb. Common on Foulshaw Moss (Barnes and Stabler, 1868); Windermere (F. Clowes); Kentmere (1868); Wildboar Fell (1888).

202. **Pohlia carnea** (L.) Lindb. Heversham Moss (Barnes and Stabler, 1870); on the banks of river Kent, Levens Park (1870); Milnthorpe (1869); Brigsteer; Staveley; on the banks of river Eden, Mallerstang (1888).

203. **Pohlia annotina** (L.) Lindb. Sides of ditches, Foulshaw (Barnes and Stabler, 1868); Kendal (C. H. Binstead).

204. **Pohlia commutata** (Schpr.) Lindb. Striding Edge, Helvellyn (H. N. Dixon, 1891); Bow Fell (Binstead, 1894).

205. **Pohlia albicans** (Wahlenb.) Lindb. Helvellyn, in rills, barren (W. Borrer); Lyth Moss (1885); Potter Fell (Binstead, 1886); at the top of Deep Ghyll, Mallerstang, c.fr.! (1888).

206. **Plagiobryum Zierii** (Dicks.) Lindb. *Zieria julacea* Schpr., Syn. Caldron Snout (Dr. R. Spruce, 1843); Red Screes

and Rydal Pikes (Borrer, 1845); Helvellyn (Nowell, 1867); Rainsborrow (1869); Grayrigg Fell (1868); Nan Bield; Barbondale; Langdale Pikes (Sidebotham, 1845); Hell Ghyll, Mallerstang.

207. **Bryum filiforme** Dicks. *Anomobryum filiforme* (Dicks.). *Bryum julaceum* Bry. Brit. Caldron Snout (R. Spruce, 1843); 'Fruiting abundantly at Kirkstone Pass' (Borrer, 1845); Mardale (1871); Grisedale, c.fr. (M. B. Slater and G. Stabler, 1878); Harter Fell (1871); Hill Bell; Sleddale Forest (1867); Staveley.

208. **Bryum concinnatum** Spruce. Caldron Snout, Teesdale (Dr. Spruce, 1843); near Tebay (Binstead, 1886); Scandale (Stabler, 1887); on dry rock, Mardale (Binstead, 1893); Far Easedale (Binstead).

209. **Bryum inclinatum** (Sw.) Bland. Quarries near Kendal (Binstead); Mallerstang (1888).

210. **Bryum pendulum** (Hsch.) Schpr. *Bryum cernuum* Br. Brit. On sand by R. Gilpin (Barnes, 1868); Levens; Langdale (Barnes, 1871).

211. **Bryum intermedium** W. & M. Meathop Marsh (Barnes and Stabler, 1868); Grayrigg Railway Station (Barnes); Mallerstang.

212. **Bryum bimum** Schreb. Sandside, Milnthorpe (Barnes, 1868); Hill Bell (F. Clowes); Longsleddale (T. Gough); Levens Force.

213. **Bryum torquescens** Br. & Sch. Meathop Marsh (Barnes, 1868).

214. **Bryum pallescens** Schleich. On mortared wall, Sizergh Fell (Barnes, 1868); Leasgill (Barnes and Stabler). [Coniston, N. Lancashire (Borrer, 1844)].

215. **Bryum cœspiticium** L. On mortared wall, Eversley, near Milnthorpe, and near Kendal (Barnes, 1868).

VAR. **badium** Bruch. Sandside, Milnthorpe (Barnes, 1868).

216. **Bryum argenteum** L. On a wooden roof, Arnside (Barnes, 1867); Heaves Farm, Levens (1867); on mud-capped walls, Ambleside (1867); Whitbarrow (Barnes); Bowness; Levens Park.

VAR. **majus** B. & S. On limestone rocks at Levens Force and Levens Park (1868).

VAR. **lanata** P. Beauv. On a bridge, New Hutton (Binstead, 1886).

217. **Bryum bicolor** Dicks. *B. atropurpureum* W. M. Windermere and Whitbarrow (Clowes, 1856); Meathop Marsh (Barnes and Stabler, 1868); Sizergh Fell; Haverbrack; Levens Park; near Kendal (Binstead).

NOTE.—Mr. J. Sidebotham reports *Bryum erythrocarpum* from near Rydal Lake. He does not state whether it is *B. erythrocarpum* of Schwægr. (*B. sanguineum*) or that of Bridel (*B. bicolor* Dicks.). I think it is most likely the latter.

218. **Bryum murale** Wils. On mortared walls, Eversley, near Milnthorpe (Barnes and Stabler, 1868); Moss End, near Farleton (Barnes); Greenside, Hincaster (1872).

219. **Bryum Mildei** Juratz. Maize Beck (Dr. Spruce, 1843); Far Easedale, Grasmere (H. N. Dixon, 1891).

220. **Bryum Muhlenbeckii** Br. Sch. Sleddale Forest on a wet rock (Binstead, 1886).

221. **Bryum alpinum** Huds. Caldron Snout (J. G. Baker); Hill Bell (1867); Kentmere, c.fr. (Barnes, 1869); Naddle Forest (1871); Nab Scar (1867); Langdale, c.fr. (Barnes, 1871).

222. **Bryum pallens** Swartz. Swindale (Barnes, 1867); Hill Bell (1868); Grisedale (Stabler and Slater, 1878); Red Tarn, Helvellyn (1886); Wildboar Fell (1888).

223. **Bryum Duvalii** Voit. ['Barren in a Gill, Glaramara' (W Borrer, 1845)]; Helvellyn (G. E. Hunt); Dollywagon Pike (Binstead, 1885); Keppel Cove (W. B. Waterfall, 1887).

224. **Bryum ventricosum** Dicks. *B. pseudotriquetrum.* Langdale Pikes (J. Sidebotham, 1845); Mardale (Barnes, 1868); High Cup Nick and Caldron Snout (1868); Barbon Low Fell (1876); Levens Force (1886).

225. **Bryum capillare** Hedw. Barrow Field, Helsington; Levens and Kentmere (Barnes, 1868); Heaves Park wall; Ambleside; Rydal and Staveley (1868); Patterdale; Pooley Bridge.

VAR. **obconicum** (Hsch.). Levens (Barnes).

226. **Bryum proliferum** (L.) Sibth. *Bryum roseum.* Whitbarrow (Barnes and Stabler, 1867); Barrow Field Wood (1872); Rayrigg Wood, Windermere (1876); Cock Hag, Underbarrow.

Fam. *BARTRAMIACEÆ.*

227. **Conostomum boreale** Swartz. Swirrel Edge, Helvellyn (H. N. Dixon, 1891).

228. **Bartramia Œderi** (Gunn) Sw. Mardale (1882); Kentmere and Long Sleddale (Binstead, 1885).

229. **Bartramia pomiformis** (L.) Hedw. Windermere (Clowes); Long Sleddale (T. Gough); Barrow Field (Barnes, 1868); Rydal (1868); Naddle Forest (1882); Patterdale (1886).

VAR. **crispa.** Helvellyn (Hunt, 1862); Mardale (Stabler, 1872).

VAR. **gracilis.** Harter Fell (Barnes, 1869).

230. **Bartramia norvegica** (Gunn) Lindb.; *B. Halleriana.* In a ravine near Brothers' Water (J. Sidebotham), 1845; Windermere (F. Clowes); Stock Ghyll Force (1867); Naddle Forest (1882); Longsleddale (Binstead, 1885).

231. **Bartramia ithyphylla** Brid. Helvellyn (Miss Wright); Mardale (Barnes, 1868); Hill Bill (1867); by river Lune, near Ingmire Hall (1882); Swindale (1868); Red Screes (1881).

232. **Philonotis fontana** (L.) Brid. 'Clear streams in Westmorland on the sides of hills, Mr. (John) Gough'; Withering's 'Arrangement' (1796), p. 799; Helvellyn (Borrer, 1844); Kentmere (1867); Longsleddale (T. Gough); Harter Fell; Tebay; Langdale; Wildboar Fell; Ravenstonedale (Barnes, 1871); Caldron Snout (1868).

VAR. **falcata.** Stock Ghyll, Ambleside (Barnes, 1867).

233. **Philonotis calcarea** Schpr. Brigsteer (Barnes, 1867); by the spring near Raven Lodge, Whitbarrow (1867); Force Bridge, Levens (1888); near Kendal (Binstead, 1885).

234. **Breutelia chrysocoma** (Dicks.) Lindb. *Bartramia arcuata.* Storrs, Windermere, c.fr. (Clowes); Heversham Head (1885); Staveley, c.fr.; Low Forest, Mardale (1887); Deep Ghyll, Wildboar Fell (1888). I have also gathered this species with fine fruit at Lowdore and at Bracken Ghyll, Dent (Yorks.).

[**Catoscopium nigritum** (Hedw.) Brid. This has been found on Walney Island by Mr. Barnes, and at Widdy Bank, Teesdale. It is a plant very likely to be found at the head of Morecambe Bay.]

235. **Gymnocybe palustris** (L.) Fries. *Aulacomnium palustre.* Windermere (F. Clowes); Longsleddale (T. Gough); Staveley (Barnes, 1871); Clibburn Moss; Foulshaw Moss; Mardale; Wildboar Fell.

[**Gymnocybe turgida** (Wahl.) Lindb. Whernside, Yorkshire (West and Lees, 1878).]

Fam. *MNIACEÆ.*

236. **Mnium marginatum** (Dicks.) P. Beauv. *M. serratum* Schrad. Windermere (F. Clowes); Mardale (Barnes, 1868); by the river Kent, Levens Park (1869); Red Tarn, Glen Ridding (1886); Wildboar Fell.

237. **Mnium orthorrhynchum** Br. Eur. Stock Ghyll, Ambleside (Binstead, 1893); on rocks in a ravine, Naddle Forest (Binstead, 1893).

238. **Mnium hornum** L. Longsleddale and Scarfoot Mills, near Kendal (T. Gough); Bowness; Witherslack and Brigsteer Wood (Barnes, 1868); Kentmere (1868); Mardale; Staveley: Ambleside; Merke Side, near Shap; Scandale; Hell Ghyll, on the Upper Eden; Ulpha.

239. **Mnium sylvaticum** Lindb. *M. cuspidatum* Hedw. Brigsteer Wood (Barnes, 1868); Windermere (F. Clowes); Naddle Forest (1871); Lyth (F. Clowes).

240. **Mnium Seligeri** Juratz. *M. affine β elatum.* Shap (C. H. Binstead, 1893).

241. **Mnium cuspidatum** Bland. *M. affine.* Levens, among grass (Barnes, 1870); Witherslack (1870); Whitbarrow.

242. **Mnium undulatum** L. Heversham Head, freely fruiting (Barnes and Stabler); Windermere (F. Clowes); Hell Ghyll, Mallerstang.

243. **Mnium rostratum** Schrad. Heversham Head (Barnes and Stabler, 1868); Windermere (F. Clowes); Kentmere Plantation; Slack Head, near Beetham; Red Tarn, Glenridding; Mallerstang.

244. **Mnium stellare** Reichenb. Levens Park (Barnes and Stabler, 1868).

245. **Mnium cinclidioides** (Blytt) Hueb. Grasmere (Binstead, 1893).

246. **Mnium pseudopunctatum** (L.). *M. subglobosum* B. & S. Helvellyn (W. Borrer, 1845); bogs near Bowness (G. E. Hunt and J. Atkinson, 1867); Ulpha Moss (Barnes and Stabler, 1868); Barrow Field, 1881); Staveley Head (1872).

247. **Mnium punctatum** L. Longsleddale (T. Gough); Windermere (F. Clowes); Hill Bell (1867); Red Screes (1881); Red Tarn; Ulpha (1868); Wildboar Fell; Scandale (1887); Kentmere (1872).

248. **Cinclidium stygium** Swartz. Howgill Fells (Binstead, 1886). [Widdy Bank, Durham (R. Barnes).]

MUSCI PLEUROCARPI.

Tribe I.—*FONTINALACEÆ.*

249. **Fontinalis antipyretica** L. Frequent in streams; Kentmere (1867); near Levens Bridge (Barnes, 1868); Mardale Green (1871); near the source of river Eden.

250. **Fontinalis squamosa** L. 'In rivulis montosis in Westmorlandia,' Hudson's Flora Anglica, ed. i. (1762), p. 398. In the upper part of the river Kent (1868); Sleddale Head (Barnes, 1869); R. Rothay, Rydal (1885).

Tribe II.—*NECKERACEÆ.*

251. **Cryphæa heteromalla** (Hedw.). Windermere (F. Clowes); on poplars in hedge-rows of the Moss, Levens (Barnes and Stabler, 1868); in the hedge-rows near Levens Bridge; Witherslack (1879). [Gill Head, Bowness, 1867)]. Only found sparingly.

[**Leptodon Smithii** Dicks.). On trees, Rosthwaite (Prof. Barker, 1870, and G. E. Davies, 1871). On a wall at Lowdore (1881). Dr. Spruce informed me that Dr. Greville previously found this plant in Borrowdale].

252. **Neckera pumila** (Hedw.). 'In arborum truncis, in sylvis inter Troutbeck et Ambleside in Westmorlandia,' Huds. Flora Anglica (1778), p. 468, and Sir J. E. Smith in Flora Brit. adds, 'Where I found it in 1782.' On trees, Levens Bridge and Heversham Head (1869); Staveley (Barnes, 1869); Naddle Forest, c.fr.; Swindale; Kentmere; Beetham; Patterdale (W. B. Waterfall, 1887). Our Westmorland plant seems to mostly be the form, which in Bry. Europ. is called *Neckera Philippeana.*

253. **Neckera crispa** L. 'About Kirkby Lonsdale, Westmorland, Dr. J. E. Smith.' Vide Withering's 'Arrangement of Brit. Plants' (1796). Abundant, more especially on limestone, Windermere (Clowes); Cunswick Wood (T. Gough); Barrow Field (Barnes, 1867); Kentmere Hall (1869): Levens Park and Heversham Head; Black Crag, Staveley; North end of Naddle Forest; Patterdale (J. Cash).

254. **Neckera complanata** L. Natland (J. Just); Levens Park wall, c.fr. (Barnes and Stabler, 1870); Rayrigg, Windermere (Barnes and Clowes); Witherslack; Mallerstang; Kirkby Lonsdale; Ambleside.

255. **Homalia trichomanoides** (Schreb.). Windermere (Clowes); Mabbin Hall Lane, Heversham Head (Barnes and Stabler, 1871); Brigsteer Wood; Rydal Falls (1877); Kentmere Plantation (1874); Grisedale (W. B. Waterfall, 1887).

256. **Leucodon sciuroides** (L.). Fairly common on trees and rocks. On the garden wall at Gaythorn Hall, near Appleby, c.fr.! (R. Craig, Barnes and Stabler, 1872); Levens and Burneside (1869); Naddle Forest (1871); Patterdale (J. Cash); Mallerstang (1888).

257. **Pterogonium gracile** (Dill.). This plant is found very sparingly in the limestone district, and then mostly on trees and boulders. I have gathered it from limestone only behind Force Cottages, Levens. On walls about Ambleside, where it fruits sparingly (J. Sidebotham, 1845); Windermere (F. Clowes); Reston Hall, Ings (T. Gough); Rydal, c.fr. (Barnes and J. Atkinson, 1867); Crook (Barnes, 1868); Langdale and near Low Wood, Windermere, c.fr.! (1869); Lyth; Sizergh Fell (on boulders); Levens Park, on trees; on rocks by east shore of Haweswater (1871); Natland (1888); Grisedale and Patterdale (W. B. Waterfall, 1887); Buckbarrow (1888).

258. **Antitrichia curtipendula** (L.). On walls, Natland (J. Just); near Storrs Hall, Windermere, c.fr. (Clowes); near Mint House, Kendal (T. Gough); Crook, c.fr.! (Barnes, 1868); Ambleside (Bry. Brit., p. 316); Kentmere, c.fr. (1869); Staveley, c.fr. (1870); Kirkstone Pass (1881); Swindale (1887); Patterdale and Grisedale (W. B. Waterfall, 1887).

Tribe III.—*HOOKERIACEÆ.*

259. **Pterygophyllum lucens** (Sm.). Windermere (F. Clowes); Ghyll Head, Bowness (1867); Hill Bell (1867); Stock Ghyll (1869); Brunt Knot, near Staveley (1873); Harter Fell (1871); Bow Fell (1875); Sleddale Forest; Benson Knot (C. H. Binstead).

Tribe IV.—*FABRONIACEÆ.*

260. **Habrodon Notarisii** Schpr. *Pterogonium perpusillum* DeNot. On sycamore by the boat-house, Rydal Lake, in 1857. I believe this was its first discovery in England. On lime tree south of Bowness (1868); on oak, Belle Isle, Windermere (T. Hartley, 1868); on sycamore and maple, near Levens Hall (Barnes and Stabler, 1869); near Sizergh Castle, on ash and elm (Barnes and Stabler, 1869); Beetham (Barnes and Stabler, 1868); Mardale (1869); near Patterdale Church, 25th July, 1878 (Slater and Stabler); Pooley Bridge, Ulleswater, on elm; Grasmere (Binstead, 1886); Shap, Binstead (1893); [on ash, Dent (1872)].

THE BIRDS OF LONAN, ISLE OF MAN.

P. RALFE.

The following notes which, during a two years' residence at Laxey, I have been able to gather, may be of interest as imperfectly illustrating the ornithology of one of the wilder and less cultured (as also the more picturesque and interesting) of Manx districts. Lonan consists of the Laxey valley, plus an additional strip of land along the coast to the southward, between the mouths of the Laxey and Groudle streams. The Laxey Glen is comparatively broad, forking as it recedes into many branches, and draining a mass of upland, cultivated often to a height of 700 or 800 feet, above which the mountain pastures and heathlands rise to a number of summits from 1,000 to 2,000 feet above sea level, and forming the watershed between this and other glens. The coast is rock-bound (one beach of hard sand intervening at Old Laxey where the glen opens to the sea) and offers little attraction for shore-birds.

As a rule there is not much wood, and small birds are few both in species and individuals; the Park gardens at Laxey, with the beautiful and fragrant fir woods overhanging them, are an exception to the general bareness, and song birds are very numerous there. Narrow strips of low wood, with pretty half-wild copses, occur also along the branches of Glenroy, the southern branch of the main glen, and in a few other places. The higher uplands, though sometimes steep, show hardly any cliff; they are generally very devoid of life at all seasons.

Among Manx birds which do not appear to breed at all in the district are the Swift and Sand-Martin, neither numerous in the Island generally, and Swallows are not abundant. I have never met with the Waterhen, but though the country is very lacking in suitable localities for it, it is hard to believe that it is altogether absent. Of small birds the Yellow-Hammer and Chaffinch are predominant; of large, the Magpie and Herring Gull.

Below I give the complete list of birds identified as having occurred in the district, which for the purpose of this paper includes the parish of Lonan. Notes have been added where anything seemed worthy of remark.

An asterisk denotes the breeding of the species so marked in the district. The queries inserted indicate doubt as to whether the bird breeds.

***Missel Thrush. Turdus viscivorus.**

***Song Thrush. Turdus musicus.**

Redwing. Turdus iliacus.

Fieldfare. Turdus pilaris.

*Blackbird. Turdus merula.

Wheatear. Saxicola œnanthe. I have no proof of the breeding of this bird, which occurs on migration seemingly in sparing numbers.

Whinchat. Pratincola rubetra. I am not aware that this bird has ever before been recorded in the Isle of Man, but I saw a single specimen at Laxey, April 1897; there could be no question as to the identity of the bird, which was a brightly plumaged male, made very conspicuous by its eye-stripe.

*Stonechat. **Pratincola rubicola.** I think the Stonechat must have suffered severely from the terrible weather of Feb. 1895; at all events I did not see a single one in the district during the whole succeeding part of the year.

*Redbreast. Erithacus rubecula.

*Whitethroat. Sylvia cinerea.

*Goldcrest. Regulus cristatus.

*Chiffchaff. Phylloscopus rufus. Have heard it in plantations, but it is probably not abundant.

*Willow Wren. Phylloscopus trochilus.

*Hedge Sparrow. Accentor modularis.

*Great Titmouse. Parus major. Well distributed.

*? Cole Tit. Parus ater. Parties in the plantations above Laxey all through the winter.

*Wren. Troglodytes parvulus.

*Pied Wagtail. Motacilla lugubris. Not very frequent.

*? Grey Wagtail. Motacilla melanope. A few haunt the neighbourhood in winter, frequenting with impartiality the lead-polluted waters of the main Laxey stream, the crystal pools and flashing rapids of its Glenroy tributary, and the little drains and ditches at the edges of the fields and tramway line about the village.

*Meadow Pipit. Anthus pratensis. A very common and characteristic bird, and often the only species which gives life to the high moorlands, up to whose loftiest hill-tops it is resident in summer.

*Rock Pipit. Anthus obscurus. Equally common at the tide-edge and along the brows.

Golden Oriole. Oriolus galbula. The only Manx specimen, a female, was recorded from Laxey, in April 1879, by Mr. P. M. C. Kermode.

*Swallow. **Hirundo rustica.** Not abundant. On 31st March, 1897, a cold day of a cold spring, a single Swallow appeared at Laxey Bridge—a very early date.

*Martin. **Hirundo urbica.** I only know of one colony, a small one in a recess of the rocky coast, in close vicinity to nesting places of Raven, Peregrine Falcon, and Herring Gull.

Sand Martin. Hirundo riparia. I once saw a few passing on migration.

Goldfinch. Carduelis elegans. Has become rare. I only once saw it, a small flock last winter.

*Greenfinch. **Ligurinus chloris.** In suitable localities.

*Common Sparrow. **Passer domesticus.**

*Chaffinch. **Fringilla cœlebs.** Very abundant. This and the Yellow-Hammer are the characteristic small birds.

*Linnet. **Linota cannabina.**

*Common Bunting. **Emberiza miliaria.** Have seen it in only one or two places; it is said it was once common, and was eaten under the name of 'Barley-bird.' For the last two summers a Bunting might any day be seen on the telegraph wires at a certain spot on the Ramsey Road, two miles north of Laxey.

*Yellow-Hammer. **Emberiza citrinella.**

*Skylark. **Alauda arvensis.**

*Common Starling. **Sturnus vulgaris.** Seen in all cultivated parts, but not very abundant.

[*Chough. **Pyrrhocorax graculus.** Seemingly extinct. Formerly found in numbers on the rocky coast north of Laxey.]

*Magpie. **Pica caudata.** A very conspicuous and dominant bird in the district. I have seen as many as forty coming in together to roost in a certain plantation. Mr. E. Rydings tells me of a Magpie which was accustomed in the early morning to give repeated taps at the windows of his own and a neighbour's house at Laxey.

*Jackdaw. **Corvus monedula.** Common on the coast, also in the village.

*Hooded Crow. **Corvus cornix.** A conspicuous bird of the coast, pairs year by year, frequenting a certain short range for breeding purposes, though seemingly using each season a separate nest. It breeds also inland, in trees in the glen, but is said to have decreased in numbers. Having been told by Mr. T. Fargher, of Cronk-e-Chule, that there was near Agneash

a nesting-site of the Grey Crow, of at least 50 years' standing, and that remains of nests were there to be seen *on the ground*, I took an opportunity, though the season was winter, of visiting the spot. Following up a mountain stream to near its head, at a height above sea level of 1,000 feet, I found a small but sharply-defined gully, down which fell a little waterfall, the sides of the ravine being richly clothed with tall heather, blaeberry, Luzula, hard-fern, polytrichum and sphagnum mosses; much of the vegetation being richly green even in January. Down the opening of the gully was a wide and picturesque view, the village of Agneash standing out on its cultivated promontory among the barren fells, and far beneath the Laxey valley, with its many scattered white houses, winding to the sea. Near the lower end of the gully, just under the top of the bank, were the remains of a nest well-sheltered by tall bushy heather, perhaps fifteen feet above the bed of the stream; and a little higher up, just opposite the waterfall, a second in a very similar but perhaps a little steeper situation lower down. Still higher up, where the sides of the ravine became diminutive cliffs instead of slopes of heather-covered earth, a third lay on a little ledge just at arm's reach from the ground. All these remains seemed to be some years old, and my informant knew of no nesting within four or five years' time. In treeless and cliffless districts, such as are afforded by some of the Outer Hebrides, it appears that the Hooded Crow frequently nests on the ground, but in the Island the maritime cliffs are its chief resort; and in inland districts trees, though not usually abundant, are fairly well distributed, and also used by it, so that such sites as those mentioned above seem peculiar.

***Rook. Corvus frugilegus.** Abundant; to be met with everywhere, in the fields, in the village, on the beach, on the moorlands. So far as I know there are only three rookeries in the district, two (small ones) within the limits of the village, the other (larger) a little outside.

***Raven. Corvus corax.** Two or three pairs on the coast.

Swift. Cypselus apus. Seemingly a passing straggler only.

***Cuckoo. Cuculus canorus.**

***Long-eared Owl. Asio otus.**

***Sparrow Hawk. Accipiter nisus.**

***Peregrine Falcon. Falco peregrinus.** Two pairs; a young bird, caught at one of the nesting places last summer, was for some time kept at Laxey.

*Kestrel. **Falco tinnunculus.** A familiar ornament of the coast line.

Cormorant. Phalacrocorax carbo. Single birds, on the water or perched on some prominent rock, are not uncommon along the rocks. Such are often immature.

Shag. Phalacrocorax graculus. Does not seem to breed in the district, and only very sparingly on the eastern side of the Island.

Gannet. Sula bassana. Frequent and often numerous in summer.

Common Heron. Ardea cinerea. Not frequent or abundant.

Wild Goose. Anser sp. Occasionally seen; species not identified.

Wild Duck. Anas boscas. Seemingly scarce.

Shóveller. Spatula clypeata. A specimen obtained in 1893.

*Ring Dove. **Columba palumbus.**

*Partridge. **Perdix cinerea.**

*Red Grouse. **Tetrao scoticus.** Introduced in the Island; a few birds at least in the long stretches of heather which in summer so richly adorn some of the higher Lonan hills.

*Landrail. **Crex pratensis.**

Common Coot. Fulica atra. I only once saw a specimen, evidently on migration, hiding among the coast-rocks; the country is invariably unsuited to this species.

Golden Plover. Charadrius pluvialis.

Ringed Plover. Ægialitis hiaticula. Occasionally only on Laxey Beach.

*Lapwing. **Vanellus cristatus.** Quite a scarce bird, but breeds at one spot at least.

Oystercatcher. Hæmatopus ostralegus. Casual only.

*? **Common Sandpiper. Totanus hypoleucus.** Seen on migration at the mouths of streams and at rocky coast recesses.

Common Curlew. Numenius arquata. Seemingly occurs on passage only.

Woodcock. Scolopax rusticola.

*? **Common Snipe. Gallinago cœlestis.**

Black-headed Gull. Larus ridibundus. A few on Laxey Beach and some smaller creeks, except in the breeding season. The distribution of the several species of Gull is the same as in Douglas Bay, all being in much smaller numbers.

Common Gull. Larus canus. A few through the winter.

***Herring Gull. Larus argentatus.** A colony, not large, on the cliff-bound coast north of Laxey. The common Gull of the district and Island.

Lesser Black-backed Gull. Larus fuscus. One or two frequently seen.

Kittiwake. Rissa tridactyla. I have seen a few specimens.

Razorbill. Alca torda. Seldom seen close to the coast; no doubt abundant outside.

Guillemot. Uria troile. Seldom seen close to the coast; no doubt abundant outside.

***Black Guillemot. Uria grylle.** Seen every spring and summer; probably a few still breed.

Little Grebe. Podicipes fluviatilis. I have seen a specimen caught in a salt pool in Laxey Harbour.

There can be little doubt that in the list of Lonan birds should be included *Asio accipitrinus*, *Falco æsalon*, *Querquedula crecca*, *Mareca penelope*, and other Ducks, *Larus marinus*, *Fratercula arctica*, *Colymbus glacialis* and *C. septentrionalis*, though they do not happen to have come under the writer's notice.

NOTES—BOTANY.

New Alien Records for Lincolnshire.—*Silene conica* L. Div. 13. Lincoln, by Fossdyke, 15.6.'97; G. A. Grierson, in County Herbarium. *Pyrus aria* Ehrb. Div. 10. Martin, by Horncastle, 1896; Rev. F. S. Alston, in County Herbarium. —E. A. WOODRUFFE-PEACOCK, Cadney, Brigg, June 17th, 1897.

Lathyrus nissolia near Doncaster.—As the name of the above species does not occur in 'The Flora of West Yorkshire,' it may interest West Riding botanists to hear that it grows freely at Sandal Brick Fields, near Doncaster. I remember seeing it there six or seven years ago, and yesterday I looked for and found it again.—H. H. CORBETT, 19, Hall Gate, Doncaster, 25th June, 1897.

A Rare Lincolnshire Alien.—Miss Rawnsley, of Raithby Hall, has sent me specimens of *Anchusa sempervirens* L., gathered in Div. 10, in 'Little Lumby Wood,' Mareham-le-Fen parish, 6.1897. This is an addition to the County Herbarium. The specimen taken by Miss Lane-Claypon in Div. 11, at Skegness, was painted but not preserved.—E. A. WOODRUFFE-PEACOCK, Cadney, Brigg, June 5th, 1897.

Confirmation of an Old Lincolnshire Record.—It is pleasant to find older records which are uncertain from want of specimens made absolute by confirmation from other quarters in the same county. I recorded *Thalictrum collinum* Wallr. for Div. 8, Tothwell, by Louth, on the authority of my friend Mr. J. Burtt Davy, who is on the way home from California now to revisit the scenes of his early labours once more. On June the 10th, I received a specimen from Mr. Sam. Hudson. gathered near Epworth, in Div. 1, in 1896. It is not uncommon there in one locality.—E. ADRIAN WOODRUFFE-PEACOCK, Cadney Vicarage, Brigg, June 12th, 1897.

RELICS OF PRIMEVAL LIFE.

Relics | of | Primeval Life | By | Sir J. William Dawson | K.C.M.G., LL.D., F.R.S. | with Sixty-five illustrations | London | Hodder and Stoughton | 27 Paternoster Row | MDCCCXCVII. [Crown 8vo, price 6s.]

Under this title, Messrs. Hodder & Stoughton have recently published Sir J. W. Dawson's latest work. The price is 6s. The volume contains xiv. + 336 pages, with numerous illustrations, mostly second-hand; a geological map of Ottawa County and circumjacent lands, and a chronological life chart after Prof. White. Had there been more photographic reproductions instead of the somewhat antiquated cuts, we should have had only praise for the volume. Perhaps one other saving clause is necessary. The title may raise the hopes too high, or convey a false impression. We have here no allusion to primeval life so far as man is concerned. In reality the volume is a full and careful survey of all that has been written on the subject of *Eozoon canadense* during the last fifty years. The history of this puzzling organism practically began when Logan entered upon his labours in connection with the Geological Survey of Canada in 1840. It was not, however, till 1858 that the specimens which were collected began to be regarded as organic. When specimens were exhibited in 1859 in America, and in 1862 in London, as Laurentian fossils, few were disposed to believe in their organic character. The last thirty-five years have witnessed the publication of a perfect library of monographs, reviews, criticisms, and pamphlets on the subject, and now we have a review of the whole from the pen of the man who gave the fossil its name, and proclaimed it to the world as 'The Dawn of Life.'

The author has shown considerable skill in the weaving of his work. It does not at first appear that the sole aim of the writer is to bring Eozoon into bold relief. Beginning with life in the Cambrian, we are gradually carried backwards till we reach a condition which is of necessity azoic or destitute of life. We then turn round and gaze on the earth as it is being fitted for the reception of life, and speculate as to what life-form would be able under such conditions to find subsistence. We had found Eozoon on our journey from the Cambrian to the Archæan, and in retracing our steps are led to conclude that a creature possessed of the qualities of the corals or foraminifera might succeed, and perhaps Eozoon is a rudimentary form related to the foraminifera especially to Polytrema. Then come the questions relating to the preservation of life-forms, the marks by which they can be dis-

tinguished, and the conclusion that Eozoon is a veritable animal, perhaps the earliest representative of life which we shall ever be able to discover. Not that life may not have existed long before this particular form came upon the scene, but for obvious reasons the earliest life-forms could scarcely survive in fossil-form the fearful ordeals to which they have been subjected. As for the origin of life itself, we are no nearer the solution of the mystery than we were when Eozoon was unknown. We have only receded to an earlier date—carried back the story another chapter. Life must be either spontaneous or created. The author remarks that the former does not seem to be possible now—a statement which cannot be called dogmatic—and he therefore prefers to hold to the doctrine of creation. We believe his position will commend itself to most thoughtful people. In our present state of knowledge the belief in spontaneous generation is unscientific; while the view that life is extra-natural is only unscientific because it is beyond the realm of science, while it has the merit of commending itself to men who believe that there are realms beyond those with which science has to deal.—HILDERIC FRIEND.

NOTE—GEOLOGY.

Lincolnshire Erratics.—The address of our late President, Mr. J. Cordeaux, M.B.O.U., delivered in Leeds in November, which is printed in your last number, contains a statement to the effect that the boulders of Shap Granite lately found in North Lincolnshire by the Rev. W. Tuckwell and myself, are 'undoubted indications of a much further extension to the south of the Vale of York glacier than is generally supposed' (p. 196). This was not the impression I intended to convey when describing the finds in this journal (Nov. and Dec. 1896), and if my paper is not sufficiently clear, I owe Mr. Cordeaux and your readers an apology. The Vale of York glacier had nothing whatever to do with the South Ferriby and Barton boulders; they were deposited by the ice which came from the *east*, as pointed out in page 338 of the paper referred to. Mr. Kendall's recent researches (see Corbett and Kendall in Brit. Assn. Erratic Blocks Committee's Report, 1896) go to show that the Vale of York glacier very probably did extend much further south than was previously supposed—formerly the beautiful terminal moraines near York were thought to indicate the most southerly extension of this glacier. The ice which flowed down the Vale of York, however, certainly did not reach that part of Lincolnshire in which the finds of Shap Granite have been made. In the paper already referred to I endeavoured to show that the Boulder clay and boulders on the banks of the Humber, at Hessle and North Ferriby on the Yorkshire side, and Barton and South Ferriby on the Lincolnshire side, were brought by the Teesdale glacier (which by the way originated in the same place as the Vale of York ice) *plus the Scandinavian ice*: the two joined together. The Ferriby clays therefore were formed by ice from the east, as confirmed by the scratches on the piece of chalk at South Ferriby (loc. cit., p. 338), and not from the west. This is borne out by the fact that the Boulder Clays at North and South Ferriby contain boulders from Scandinavia, and rocks from the English Lake District, mingled together, in the same way as in the clays which compose the cliffs of our east coast. No Norwegian boulders, of course, occur in the Vale of York—another point which goes against the statement that the Vale of York glacier extended as far as North Lincolnshire.—THOMAS SHEPPARD, Hon. Sec. Hull Scientific and Field Naturalists' Club, 16th July, 1897.

THE CONSTITUENTS OF THE NORTH LANCASHIRE FLORA, 1597(?)-1893.

LISTER PETTY,
Ulverston.

TWELFTH PAPER.

Erythrea pulchella Fr. Clarke's First Record, 1796.

1874. J. of B., Miss E. Hodgson. Low-lying pastures near Green Hills, Plumpton. **1885.** Baker's Flora, 149. Miss Hodgson repeated. See previous species.

Gentiana Pneumonanthe L. C.F.R., 1633.

1796. Withering, ed. 3, 280. Walney Island, Rev. Mr. Jackson, and repeated in all subsequent eds. of Withering. **1805.** Turner and Dillwyn. Bot. Guide, ii., 366. Locality repeated, but ascribed to Ray. **1835.** Watson, New B. G., i., 301. Locality repeated, but ascribed to 'B. G.' **1837.** Baxter, Phænog. Bot. iii., 185. 'Ray' repeated. Near Coniston, Miss M. Beever. **1845.** Jopling, Furness and Cartmel, 267. Near to Roosecote, Dalton, Aiton. **1885.** Baker's Flora, 147-8. 'Rare; probably now extinct.' Jackson and Aiton repeated.

NOTE.—There seems no reason for Ray's name except a misprint in Turner and Dillwyn.

Gentiana verna L. C.F.R., 1650.

1843. Jopling, Furness and Cartmel, 267. Has been found amongst the hills in north of Furness, Aiton. **1885.** Baker's Flora, 147. Aiton repeated. 'Probably a misnomer.'

Gentiana amarella L. C.F.R., 1568.

1843. Jopling, Furness and Cartmell, 267. Near Stribers on roadside, Wilson. **1874.** J. of B., Miss E. Hodgson. Hampsfell. **1885.** Baker's Flora, 148. Ascending from near shore level at Grange.

Gentiana campestris L. C.F.R., 1597.

1864. Linton, Lake Country, 326. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. Drylands, Isle of Walney; Newfield, Seathwaite, Mrs. Hodgson.

Menyanthes trifoliata L. C.F.R., 1570.

Trifolium palustre C. B. Circ. 1680, see 1889.

1864. Linton, Lake Country, 326. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. Roudsey Wood; Urswick Tarn; Near Three Shire Stones, about the springs of the Brathay, in a bog. **1889.** Westmorland Note-book, 185. Martindale's extracts from Lawson's Note-book, circ. 1680. Marsh Grange, *copiose*, Lawson.

Limnanthemum peltatum Gmel. C.F.R., 1570.

Nymphæa lutea minor flore fimbriato C. B.

1744. Wilson, Syn., 254. By the moss river, by Hawkshead, Lawson, and repeated **1763.** Martyn, Pl. Cantab., 61 (as *Menyanthes nymphoides* L.). **1778.** S. Robson, Flora, 72. **1805.** Turner and Dillwyn, Bot. Guide, ii., 366. Lawson repeated, but ascribed to Robson. **1835.** Watson, New B. G., i., 302, as '? *Villarsia*' Vent. Locality repeated and authority thus—'(Robson) B.G.' **1885.** Baker's Flora, 149, as *Villarsia.* Lawson repeated, and 'I could not find it there in 1883,' J.G.B. **1889.** Westm. Note-book, 114. Lawson repeated in Martindale's 'Early Westm. Pl. Records.'

Polemonium cœruleum L. C.F.R., 1666.

Valeriana græca Ger. Park.

As there is a doubt about the plant having occurred in the district, I give the evidence so far as I have been able to collect it. The heavy-typed dates are those of publication. At a date now unknown Willisel reported to Ray that he had found it in the Furness Fells. **1760.** Scott's 'Derham's Remains of Ray,' 25. Ray was in Westmorland, unaccompanied by Willisel, in July or August 1668. When he was in North Lancashire we do not know, perhaps on this occasion. On Nov. 15th, 1669 (**1718.** Derham Phil. Lett., 51), Ray wrote to Dr. Lister: 'You have been more fortunate than I in finding *Val. græca* (in Yorks), which I have sought in vain amongst the Furness Fells, where I was informed by T. Willisel that it grew wild. **1670.** Ray Cat., ed. ii., 311. Thos. Willisel also found it in the North. **1718.** Derham, Phil. Lett., 97-8. Ray wrote from Middleton, June 28th, 1671: 'I intend (God willing) to begin a simpling voyage to the North, taking T. Willisel along with me, and to go over and view particularly myself those plants which he hath discovered there, by me not observed, wild with us.' That this voyage did not confirm the locality for *Polemonium* is certain, for neither in Ray's Catalogue, 1677; Fasciculus, 1688, nor Synopsis, 1690-1696-1724, is the species mentioned for Lakeland. Possibly Willisel—seemingly, and on Ray's word certainly, a truthful man—made a mistake and saw the plant somewhere else. Anyone who cares to verify the above statements can do so in the Ray Society's 'Memorials' and 'Correspondence' of Ray, which are reprints of the afore-mentioned originals. **1861** (1855). Martineau's Guide, 185. Graithwaite Woods, F. Clowes. **1864.** Linton, Lake Country, 326. Clowes' locality repeated. **1885.** Baker's Flora, 149. Locality repeated by F. Clowes. **1889.** Westm. Note-book, 114-15. Ray's letter, 1669, to Lister quoted. **1892.** Naturalist, 84. White flowered var. Side of Coniston Lake, 1887. A garden escape, L.P.

Cynoglossum officinale L. C.F.R., 1548.

1775. Jenkinson, Brit. Pl., 23. Very common in the north of Lancashire. **1874.** J. of B., Miss E. Hodgson. In many places by the (Furness) shores. **1885.** Baker's Flora, 169. Miss Hodgson repeated. Coast sandhills of the Duddon estuary at Ronnard (i.e. Ronhead), F. A. Lees.

Symphytum officinale L. C.F.R., 1538.

1892. Naturalist, 84. Hedge near Sand Gap Farm, near Foxfield, 1887. Outside the Old Vicarage at Woodland, with purplish corolla, 1887, L. P.

Symphytum tuberosum L. C.F.R., 1777.

1892. J. of B., 25. Side of Coniston Lake, 1887, L.P. A writer in this journal was unaware of my record and marked it as *new* in 1894.

Borago officinalis L.

1843. Jopling, Furness and Cartmel, 267. Around Ulverston, Aiton. **1874.** J. of B., Miss E. Hodgson. Waste ground near Aldingham.

Anchusa sempervirens L.

1843. Jopling, Furness and Cartmel. Near Cark Hall, Wilson. **1874.** J. of B., Miss E. Hodgson. Rubbish heaps at Swarthmoor. **1885.** Baker's Flora, 169. An occasional straggler from gardens . . . Swarthmoor Hall.

Lycopsis arvensis L. C.F.R., 1633.

1801. Withering, ed. iv, 227-8. Cornfields about Ulverston, but not common, Gough; and repeated in all subsequent editions. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 169. Rampside in Furness, Miss S. Beever.

[**Pulmonaria officinalis** L.

1864. Linton, Lake Country, 326. 'Common,' no locality. Certainly a mistake, as the plant is said by Baker to be only an occasional escape from gardens. Flora, 169. I have never seen it, even as an escape, in North Lancashire. To be common in the Lake District it ought to occur here too.]

Mertensia maritima Gray. C.F.R., 1640.

Buglossum dulce ex insulis Lancast. Lancashire Bugloss.

1640. Parkinson, 765 (No. 5). Groweth in one of the isles about Lancashire; there found by Mr. Thos. Hesketh . . . the fifth sort hath not been related by any before. **1655.** Lobel. Stirp. Illust. 121, as *B. sive Boragodulcis mellita Lancast.*, and refers to Parkinson. 'Dono Hesketh.' **1688.** Ray, Fasc. 22, as *Echium marinum* P.B. Against Biggar, in the Isle of Walney, plentifully,

Lawson; and repeated **1690**, Syn., ed. i., p. 76. **1693**. Ray, Hist. i., 500. **1695**. Camden, Brit., ed. Gibson, 803. **1696**. Ray, Syn., ed. ii., 120. **1699**. Morison, Pl. Oxon., pt. 3, 450, as *Cynoglossum perenne maritimum procumbens foliis glaucis brevioribus*, Nobis.* In insula quadam Lancast. vicina, aliisque septentrionalibus oris Brit., reperitus D. Thos. Lawson: viri Rei Brit. satis perito ipsi accepimus. **1710**. Salmon, Herbal I., 128. Hesketh repeated. From this time Hesketh drops out of the lists and gives place to Lawson! **1718**. Derham, Phil. Lett., 216. Lawson's letter to Ray, April 1688 in full; and repeated **1724**. Ray, Syn., ed. iii., 228. **1744**. Wilson, Syn., 80. **1762**. Hudson, Fl. Ang., ed. i., 67-8, as *Pulmonaria marit.* L. **1775**. Jenkinson, Brit. Pl., 23-4. **1778**. S. Robson, Flora, 194. On the sea shore . . . Lancashire. **1778**. Hudson, Fl. Ang., ed. ii., 81. **1789**. Camden, ed. Gough, 145. **1796**. Withering, ed. iii., 229. West shore Isle of Walney, Atkinson; and repeated in all subsequent editions. **1805**. Turner and Dillwyn, Bot. Guide, ii., 366. Atkinson and Lawson repeated; but they both represent the same locality. **1805**. West, Antiq., ed. Close, 378. Atkinson repeated. **1807**. Miller, Dict., ed. Martyn, ii., pt. 1. **1826**. Curtis, Fl. Lond., ed. Graves, iii., plate 18, and foot-note to text. **1835**. Watson, New Bot. Guide, i., 302; but ascribed to 'B.G.' **1842**. Evans, Furness and Furness Abbey, 26. **1848**. Ray, Corresp. Ray Soc., 197 et seq. Lawson's letter to Ray in full. **1867**. Eng. Bot., ed. iii., vol. 7, 94. **1874**. J. of B., Miss E. Hodgson. No locality. **1885**. Baker's Flora, 168. Lawson repeated. Seen at Walney in 1881, Rev. A. Ley. **1885**. Palatine Note-book, May 14th. Quoted from Parkinson by Chas. Bailey. **1889**. Westm. Note-book, 115. Early Westm. Pl. Rec. Lawson repeated. **1892**. Naturalist, 82. Lawson's locality repeated. Not so plentiful as formerly, L. Petty. **1894**. J. of Bot., 15. Hesketh repeated in Clarke's 'First Records.'

The name in Lond. Cat., ed. ix., is *Pneumaria maritima* Hill.

Myosotis cæspitosa Schultz. C.F.R., 1816.

1885. Baker's Flora, 166. Ascending from the shore marshes at Flookborough.

Myosotis palustris Relh. C.F.R., 1597.

1864. Linton, Lake Country, 326. 'Common,' no locality. **1874**. J. of B., Miss E. Hodgson. Roadsides, edges of ponds, etc. **1885**. Baker's Flora. Fine about Brathay and Skelwith.

Myosotis repens D. Don. C.F.R., 1821.

1874. J. of B., Miss E. Hodgson. Leybarrow, near Penny Bridge; Cartmel Fell; Walna Scar, above the Quarries.

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*For a longer name for this see Plukenet's *Phytographia*, 1691.

Myosotis arvensis Hoffm. C.F.R., 1597.

1864. Linton, Lake Country, 326. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

VAR. **umbrosa** Bab.

1885. Baker's Flora, 167. Woods near the Ferry Inn, Windermere (? J.G.B.).

Myosotis versicolor Reichb. C.F.R., 1670.

1864. Linton, Lake Country, 326. 'Common,' no locality. **1874.** J. of Bot., Miss E. Hodgson. Walls at Colton. **1885.** Baker's Flora, 167. Newby Bridge, Colton and Walney Island.

Lithospermum officinale L. C.F.R., 1548.

1874. J. of B., Miss E. Hodgson. About Plumpton and on the beach at Bardsea. **1885.** Baker's Flora, 167. Miss Hodgson repeated. Furness Abbey, W. Foggitt. Woods between Grange and Lindale, J. G. Baker.

Echium vulgare L. C.F.R., 1551.

1892. Naturalist, 82. On the raised beach at Bardsea, 1888-90. Not seen there in 1891, L. Petty.

Calystegia Sepium R. Br. C.F.R., 1548.

1864. Linton, Lake Country, 326, as *Convolvulus*. Common, no locality. **1874.** J. of B., Miss E. Hodgson. Hedges and woods, not infrequent.

Calystegia Soldanella R. Br. C.F.R., 1551.

Soldanella marina Ger. First reported by Lawson to Ray, 1688.

1718. Derham, Phil. Lett., 222. Walney Island. Lawson, in his letter to Ray. **1796.** Withering, ed. iii., 240. Locality repeated by J. Dalton;* and repeated in all subsequent editions of Withering. **1805.** West. Antiq., ed. Close, 376. Locality repeated by Atkinson; and in **1842.** Evans, Furness and Furness Abbey, 24. **1843.** Jopling, Furness and Cartmel, 267—as *Calystegia*—by Aiton. **1848.** Ray Corresp., Ray Soc., 197 et seq. Lawson in full. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 150. Lawson repeated. 'Also by Dalton and Aiton.' **1889.** Westm. Note-book, 115. Lawson repeated in Martindale's Early Westm. Pl. Rec.

Convolvulus arvensis L. C.F.R., 1538.

1874. J. of B., Miss E. Hodgson. Tridley Marsh. **1885.** Baker's Flora, 156. 'Not seen in the heart of the Lake District . . . nor at Coniston.'

*Dalton's Herbarium is in the possession of the Manchester Philosophical Society, a fact only recently learned by me, but probably well known to others.

Solanum Dulcamara L. C.F.R., 1568.

In the list of books which prefaces these papers, Dugdale's 'Monasticon' is included as referring to *Atropa*. It is now considered that the plant intended is this species (Naturalist, March 1895. Notes and Queries, 1894, passim), and the record in MS. carried back to 1412, the date of completion of the Coucher Book of Furness. This points to a much older date than that year for the plant in the neighbourhood of the Abbey; the compilers of the Coucher Book say they quoted from older documents, and the compilation took many years. Therefore the old records previously supposed to refer to *Atropa* are placed here. **1412.** See 1888. Full quotation below. **1655.** Dugdale, Monasticon. This I have been unable to see. **1682.** Dugdale, Monasticon I., 705, col. I., quoting metrical preface to Coucher Book:

Primus ei fundus Tulket fuit haud dubitatur
Quodam fundatur est Bekansgill que secundus.

Col. II.:

Hæc vallis tenuit olim sibi nomen ab herba
Bekan, quia viruit dulcis nunc, tunc sed acerba
Unde domus nomen Bekansgill claruit ante.

And repeated in subsequent editions. **1774.** West, Antiq. of Furness, 4to edition—as in Dugdale; but West considered the plant to be *Atropa*, and wrote that the Herba Bekan *was* that species, and therefore Bekansgill = his 'vale of Nightshade.' But his followers added the word 'Deadly' to it, and so far as I can see this is the origin of the term and the legend of *Atropa* at Furness Abbey. **1805.** West, Antiq., ed. Close (in 8vo). Statement repeated. But *Atropa* did grow there as we know from another source.

1843. Jopling, Furness and Cartmel, 268. In hedges about Dalton and Urswick, Aiton. **1864.** Linton, Lake Country, 326. No locality. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1874.** J. of B., Miss E. Hodgson. Not infrequent in hedge-rows (in Furness). **1888.** The Coucher Book of Furness, ed. for Chetham Soc. by Canon J. C. Atkinson, vol. 1, the metrical preface from which the above verses are taken. **1894.** Notes and Queries (vide Furness Abbey in index), where the plant is determined to be *Solanum Dulcamara* L., the *Amara dulcis* of Turner.

Solanum maritimum Bab.

1874. J. of B., Miss E. Hodgson. Drylands, Isle of Walney; and repeated **1885.** Baker's Flora, 151.

Solanum nigrum L. C.F.R., 1597.

1885. Baker's Flora, 151. Abundant at Barrow-in-Furness, W. Foggitt.

Lycium barbarum L.

1892. Naturalist, 84. Naturalised; roadside outside Old Vicarage at Woodland, 1887. In a hedge, outside a cottage garden, between Ulverston and Arrad Foot, 1891. Naturalised on limestone scar outside Wyke House, at north-east end of Humphrey Head. All escapes, of course, L.P.

Atropa Belladonna L. Circ. 1680, see 1889. C.F.R., 1570. **1744.** Wilson, Syn., 122-3—as Belladonna. Beside Furness Abbey. Wilson is here quoting from 'the MS. of Mr. Lawson's,' mentioned in his preface. For an account of this Note-book of Lawson's see Westm. Note-book, 1889, 183. It was used also by Rev. T. Robinson in 'Nat. Hist. Lancashire and Cheshire,' 1709. **1763.** Martyn, Pl. Cantab, 60. Locality repeated. **1774.** West, Antiq., 4to ed. **1805.** West, ed. Close. The County History of Baines; even the last ed. of this by Jas. Croston take the references given under *Solanum Dulcamare* to apply to this species, although none of them can solve the real meaning of Bekan. **1775.** Jenkinson, Desc. Brit. Pl., 35. 'About Furness Abbey, from which it,' etc., 'by Mr. West.' **1793.** Milne and Gordon. Indig. Bot. I., 324. **1796.** Withering, ed. iii., 252. 'Very luxuriant among the ruins of Furness Abbey, hence the valley called the Vale of Nightshade—see West.' Atkinson; and repeated in all subsequent editions of Withering. **1805.** West, ed. Close, 377. 'Now almost exterminated,' Atkinson (who compiled the plant list). West died 1779. **1830.** Otley, Guide, ed. iv. 'F. Abbey; on the coast near Flookborough.' (This is still good, from Canon Winder to Cowpran Point, 1895.) And reprinted in all subsequent editions of Guide. **1834.** Baxter, Phænog. Bot., i., 10. Atkinson repeated. **1835.** Watson, New Bot. Guide, i., 302. Otley repeated and named. **1842.** Wordsworth, Scenery, 23, Furness Abbey. **1842.** Evans, Furness and Furness Abbey, 23. Atkinson as in 1805. **1843.** Jopling, Furness and Cartmel, 268. Furness Abbey and Conishead Bank, Aiton. Copsehead and Otley's coast station repeated, Wilson. **1854.** Phytologist, 5. Furness Abbey, Jos. Robson. **1859.** Phytologist, 321. 'Visit if you will F.A. (where *Atropa* grows),' Edwin Green. **1861.** Phytologist, 68. Near the Spa on Humphrey Head, E. Green. **1861.** Phytologist, 259. Dr. Windsor says he could not find it *on* Humphrey Head. **1864.** Linton, Lake Country, 326. Furness Abbey and Otley's coast station repeated. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 151. J. Wilson (i.e. Lawson), Otley, Aiton, and W. Wilson repeated. Shore hedge west of Humphrey Head, J. G. Baker. In the Park at Holker, Rev. A.

Ley. **1889.** Westm. Note-book, 183. Extracts from Lawson's Note-book, circ. 1680, ed. by J. A. Martindale. 'At Furness Abbey,' Lawson. **1892.** Naturalist, 82. *On* Humphrey Head, as recorded by E. Green; on the shore west of Humphrey Head; on the shore near Canon Winder, L.P. There is no *Atropa* about Copsehead now.

Hyoscyamus niger L. C.F.R., 1551.

1830. Otley, Guide, ed. 4, 145. On the coast near Flookborough; and repeated in all subsequent editions. **1843.** Jopling, Furness and Cartmel, 268. Sandy places near Bardsey, Aiton. **1885.** Baker's Flora, 150. Walney Island; Bardsea; Grange.

Verbascum Thapsus L. C.F.R., 1538.

1843. Jopling, Furness and Cartmel, 268. Conishead Bank, Aiton. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1874.** J. of B., Miss E. Hodgson. No locality.

Verbascum virgatum Stokes. C.F.R., 1787.

1874. J. of B., Miss E. Hodgson. Roosebeck, Mr. R. Ashburner; and repeated **1885.** Baker's Flora, 152.

Verbascum Blattaria L.

1843. Jopling, Furness and Cartmel, 268. In gravelly places, frequent.

Linaria Cymbalaria Mill. C.F.R., 1640.

Cymbalaria Italica hederacea ? Lobel.

[**1640.** Parkinson, Theatre, 681. . . . Also on thatched houses in the north parts, as I am given to understand, and most abundantly in Lancashire. **1650.** How, Phytologia, 33. Divers parts of Lancashire, and refers to Parkinson. **1714.** Philos. Trans. above quoted by Petiver. 'Tis said to be found wild, etc. **1855.** Phytologist, 47 and 71. Park. and Phil. Trans. quoted.] **1882.** J. of B., 347. Naturalised on old walls at Broughton-in-Furness, W. F. Miller. **1885.** Baker's Flora, 156. Alien. Frequently established on old walls, as at Sawrey and Grange-over-Sands.

Linaria repens Mill. C.F.R., 1670.

1846. Phytologist, 426. Is quite a wild plant near Nibthwaite; near Newby Bridge, on a dwarf wall facing a lawn, by the roadside to Stavely (in Cartmel); and in gardens at Stavely and Ambleside, W. Borrer. He also says that he failed to see Mr. Ball's *Linaria* from the rocks of Coniston Water. What is this, and where is the reference? **1850.** Bot. Gaz., 96. 'Some white flowered, brought from Coniston Water'—Nibthwaite is at the foot of the lake—'now produce striped flowers in my garden,' W. Borrer. **1864.** Linton, Lake Country, 326. Has been found at Coniston. **1885.** Baker's Flora, 156-7. Borrer repeated.

BIRD-NOTES FROM THE HUMBER DISTRICT.

JOHN CORDEAUX, F.R.G.S., M.B.O.U.,
Great Cotes House, R.S.O., Lincoln; Ex-President of the Yorkshire Naturalists' Union.

These notes are in continuation of those published in this journal for January 1897, p. 13.

Haliaëtus albicilla (L.). **Sea Eagle.** A fine adult female, the fore parts light-coloured and tail white, was shot in the winter of 1896-7 at Thorpe, near Bridlington. It is now in Mr. Machen's shop at the Quay.

Circus cineraceus (Montagu). **Montagu's Harrier.** I recently examined at Mr. Bailey's a handsome female of this species, shot in the late autumn of 1896, by a fisherman, in very bad weather, on Flamborough Head. The outer web of the fifth primary was entire and not notched, and the inner and outer notches on the first and second primaries respectively one inch below the coverts. The last Yorkshire nest of this harrier was taken in 1871 near Bridlington, and formerly it nested in several localities in the county.

Motacilla melanope Pallas. **Grey Wagtail.** A pair nested this season in the wall ivy close to my library window. The nest, of fine roots and dead grasses lined with white cow's hair, was commenced in the second week in March; the female commenced to sit about April 25th, and the young left the nest on May 22nd. This is the first record of the Grey Wagtail nesting in Lincolnshire, if not in any of the eastern counties south of the Humber.

Saxicola œnanthe Linnæus. **Wheatear.** March 29th. Was first seen by Mr. Hamerton near Leeds. I found it very plentiful at Flamborough in the second week of May.

Corvus cornix Linnæus. **Grey Crow.** April 10th. A single pair in Cotes marshes. On the 12th I saw one apparently paired with a black Carrion Crow, as they flew and kept together. On May 5th a pair at Flamborough, and on the 8th a single bird. Again on June 12th, when I was out in a boat, one which had lost several primary quills flew across Filey Bay to the Speeton Cliffs.

Tringa canutus Linnæus. **Knot.** April 10th. Thousands to tens of thousands on the Humber foreshores near Kilnsea.

Squatarola helvetica (Linnæus). **Grey Plover.** April 10th. Many in same locality, more or less in summer plumage. Several along with Dunlin on May 3rd, in very complete breeding dress on the Humber foreshores at Great Cotes.

Numenius arquata (Linnæus). **Curlew.** April 10th. Great numbers on the Humber coast near the Spurn, lining the tide edge, or wading breast deep in the water.

Gallinago cœlestis (Frenzel). **Common Snipe.** April 24th. A pair or two nest in some boggy land in this parish, which was not formerly the case.

Cuculus canorus Linnæus. **Cuckow.** First seen April 25th; at Flamborough 28th (Bailey).

Ruticilla phœnicurus (Linnæus). **Redstart.** March 22nd. First at Flamborough (Bailey).

Turdus torquatus Linnæus. **Ring-Ouzel.** I saw at Mr. Bailey's an adult male which had been killed against the lantern at the Flamborough Head lighthouse at 3 a.m. on April 20th. Wind N.N.E. with rain. On June 5th I was shown four fresh eggs of the Ring-Ouzel, also those of the Merlin and Golden Plover, from the moors above Forge Valley.

Upupa epops Linnæus. **Hoopoe.** April 30th. One seen on the Flamborough headland (Bailey).

Œdicnemus scolopax (S. G. Gmelin). **Stone Curlew.** May 4th. One seen on migration at Flamborough (Bailey).

Eudromias morinellus (Linnæus). **Dotterel.** May 6th. A 'trip' of fifty seen on their old ground on the high wold. The observer, Mr. David Atkinson, thinks they had only just arrived, as they seemed very tired and indisposed to rise. I have heard of other 'trips' seen near the coast up to the middle of May.

Larus ridibundus Linnæus. **Brown-headed Gull.** Mr. Bailey has one, picked up dead on the shore at Flamborough in the spring, in which the head, neck, and throat are black, or very nearly so, and not dark brown, and where the black touches the white of the lower neck it forms almost a dark ring. The wing formula is, however, identical with that of *L. ridibundus*.

Uria grylle (Linnæus). **Black Guillemot.** Undoubtedly nested at Flamborough in 1896. I have seen two young birds shot off the headland early in the autumn of last year, presumably bred there, one of them near the lighthouse rocks, and the other off Speeton. The adult has been observed several times this present season in the neighbourhood, and is supposed to be breeding.

Pandion haliaëtus (Linnæus). **Osprey.** May 21st. I saw one in a garden at Grimsby which had died that morning; about

a week previously it had come on board a steam trawler on the run home from Iceland. This is the second in a few months captured in this manner on board trawlers. I have, however, misplaced my note of the previous occurrence. I believe, in both cases, they alighted on the mast, and were captured by hand after dark.

Locustella luscinioides (Savi). **Savi's Warbler.** On May 24th, when driving in the marsh, I saw a small Warbler, presumably of this species, fly upwards from a bush on the side of a reedy drain. It rose like a Whitethroat, or soaring Pipit, with wings elevated, and descended laterally, still keeping the wings raised—in fact, exactly as a Whitethroat does. In colour a bright reddish-brown, lighter underneath ; tail much rounded, and kept expanded in flight. I thought I distinguished a trilling note on descending. It came down into the bush, and commenced to skulk, and I did not see it again. I have seen in September a very similar-looking Warbler in the marsh in heavy crops of wheat, clinging to the top of some prominent stalk, which, on the least alarm, dropped at once into the dense cover, and one I shot at, and probably only wounded, did not succeed in picking up.

Turdus viscivorus Linnæus. **Mistletoe Thrush.** May 26th. The first brood have flown, and the old birds have commenced a second nest, the foundation of which is in great part composed of scraps of some white gauze-like material. The second brood left the nest on June 30th.

Numenius phæopus (Linnæus). **Whimbrel.** The 'May birds' have been plentiful. I last heard them when on Filey Brigg, on June 8th, passing to the north. Wind N., hazy and thick, very cold.

Larus argentatus J. F. Gmelin. **Herring Gull.** Very few appear now to nest on the cliffs immediately to the north of Filey Brigg. The cliff-climbers at Bempton complain much of the injury they do the trade—in fact, much more than do the Jackdaws—by carrying off the eggs of the Guillemot from the ledges. This they do in their feet, and often enough drop the egg in the sea, when it at once sinks. This probably accounts for the number of fresh and unbroken eggs washed up by the tide, and which are picked up on the sands of Filey. I lately saw a Herring Gull with a much darker mantle than the ordinary shade, but was not able to see the colour of the legs and feet.

Daulias luscinia (Linnæus). **Nightingale.** In the second week of June I saw an old bird, with a caterpillar in its bill, in a thicket by the roadside about two miles from Filey, and within a few feet also a bird of the year.

Caprimulgus europæus Linnæus. **Nightjar.** On June 15th I received a female Nightjar alive, which came on board the s.s. 'Rupert' one hundred and ten miles eastward of the Spurn.

June 30th, 1897.

COLOURED FIGURES OF BRITISH LEPIDOPTERA.

Our Country's | Butterflies & Moths | and | How to Know Them. | A Guide to the Lepidoptera of Great Britain. | By | W. J. GORDON, | author of | "Our Country's Birds," "Our Country's Flowers," | etc. | with a thousand Examples in Colour by | H. Lynn. | and many original diagrams. | **London: | Day & Son** . . . | . . . | . . . | **[Crown 8vo, cloth, price 6s., viii. + 150 pages + 32 plates.]**

WANT of space has hitherto delayed our notice of this little book, the object of which is to give coloured figures of a thousand of our British Lepidoptera. As might be expected, many of the figures are quite well enough executed to give the entomological tyro considerable help in naming what he may find of our British Lepidoptera; while others again are but faint approximations to the insects which they are stated to represent.

It is difficult to criticise the text, for while we can fully recognise with appreciation the excellence of the aims of the author and to a certain extent of the plan on which he works, we cannot help but wish that the execution of the task had been put in the hands of an entomologist, especially of one whose practical experience would enable him to seize upon the salient diagnostic points. For the descriptions given in the chapter devoted to 'Genera and Species' are not merely vague and inadequate, but often wanting altogether, while the keys given are only a clue to families and genera. The arrangement of the book is as follows:—Chap. 1 gives the popular names (we hope the author has not invented any); Chap. 2 is an alphabetical index of specific names; Chap. 3 is a systematic list of the species figured; Chap. 4 bears the strange title of 'sortation,' by which we presume is meant classification, but which seems to argue the author to be a Scot; Chap. 6 treats of groups and families; Chap. 7 is a table of characters of families and their genera; and Chap. 8 is a similar one of genera and their species.

We regret to see that there is no clue in the book to its date of publication, which we believe to be in 1896.

THE FOOD OF THE MERLIN.

OXLEY GRABHAM, M.A., M.B.O.U.

This beautiful little Hawk (*Falco æsalon*) has, I regret to say, been gradually disappearing from off many of our moorlands year by year, until, were it not for the protection afforded it in certain cases, it would soon rank as a bird of the past. This year, on a certain moor not far from Whitby, I am glad to say that, owing to the courtesy of the shooting tenant, I was able to obtain a free pass for two pairs of the birds that were on his moor, and also an assurance that they should be allowed to rear their broods in peace, for it is chiefly, I am sorry to say, owing to the ignorance and prejudice with regard to all our raptorial birds that many of them have been brought to the brink of extinction. As I was able to prove from the examination of many pellets, even whilst feeding their young, the prey consisted almost entirely of Meadow Pipits, beetles, and large moths, chiefly Oak Eggars, and only in one instance did I find remains of a young Grouse. I do not for a moment deny that these birds occasionally, very occasionally, will take a young Grouse or Partridge, but surely, to the lover of nature, that is but a small price to pay in return for the pleasure of having on one's moor one or two pairs of these pretty little Hawks. The nests were made amongst the thick ling, on the thick lichen that grows so plentifully at its roots. A few broken twigs of the ling were placed, and four eggs laid in each case, from which again three young birds in each were reared. There was no larder near the nests, but at a distance of about two hundred yards, in a bare patch, where there were a few big stones, the old birds tore their prey to pieces, and there were pellets, wings, feathers, elytra of beetles, and wings of moths. These places for the tearing-up of their prey were similarly situated as regards the nests in each instance, though the nests themselves were more than four miles apart. Also I found, in examining the pellets, great numbers of seeds and old flowers of the ling, and I think that these must have been taken in when catching the Moths, either at rest on, or flying close above, the ling, and swallowed with the insect, also a few may have got on to the prey at the tearing-up place. One institution that I would gladly see abolished from off the moors is that abomination the pole trap. To my mind it is a device of the devil, for not only does many a poor bird hang there in agony before death comes as a relief to its sufferings, but also those that do escape have to go through great torture, and are maimed for life. So many harmless and useful birds are also murdered by these diabolical inventions,

and a keeper informed me, with grief, I am glad to say, that this spring, between the time of their coming and the springing of the traps for the season, one trap alone had accounted for nearly twenty Ring-Ouzels, some Wheatears, Cuckoos, and even an odd Grouse itself.

NOTE—MOSSES.

Timmia norvegica in Upper Teesdale : a New Record for Yorkshire and for England.—On June 5th this year I found the above moss on a wet rock over Cronkley Fell in Upper Teesdale. Hitherto this moss has been found only on Ben Lawers and the Den of Airlie in Scotland, and at the Powerscourt Waterfall in Ireland (see Dr. Braithwaite's 'British Moss Flora,' and the 'Student's Handbook of British Mosses' by Dixon and Jameson). The gathering was small in quantity, but I have been able to send specimens of it to Mr. M. B. Slater, F.L.S., of Malton, and to Dr. Braithwaite, of London. — W. INGHAM, 47, Haxby Road, York, July 23rd, 1897.

NOTE—LEPIDOPTERA.

Eupœcilia vectisana at Askern : an interesting Addition to the Yorkshire Lepidoptera.—During the present month of July, I captured on the bog at Askern a considerable number of a small *Eupœcilia*. They appeared to me to be *E. vectisana*, but as, so far as I knew of that species, it was confined to salt-marshes near the coast, I thought that probably my specimens were something else. However, on sending them to Mr. E. R. Bankes he fully confirmed my original opinion that the species was 'unquestionably *vectisana*.' The chief interest of this addition to the county fauna lies in the fact that *vectisana* is generally a maritime insect; the larval food-plant being *Triglochin maritimum*. The only inland locality where it had previously been taken is Wicken Fen, Cambridgeshire. In all probability the larvæ at Askern feed on *Triglochin palustre*, this plant being abundant on the bog. The moth has a very short period of flight, suddenly appearing at about 5.30 p.m. and disappearing as suddenly at about 6 p.m.—H. H. CORBETT, 19, Hall Gate, Doncaster, 21st July, 1897.

NOTE—MAMMALIA.

Whiskered Bat on the Cheshire and Staffordshire Border.—During the last week of May, when staying at Danebridge, near Macclesfield, I used each evening to watch the Whiskered Bats (*Vespertilio mystacinus*) which frequent the neighbourhood of the river Dane in considerable numbers. At about half-past seven, while it was yet broad daylight, the first Bats would appear, and their numbers increased with the waning light till it was no longer possible to distinguish them against the background of trees as they emerged for a moment from the shadows and flitted again into obscurity. They were so plentiful that one hundred would probably be too low an estimate of the number along half a mile of the river above and below the bridge. Their flight was slow, steady, and silent—I have never heard this species squeak on the wing. Individuals did not appear to wander far, but confined their attentions to single pools or short stretches of the stream, where they flitted about the alder bushes or threaded their way with marvellous precision through the lower branches of the sycamore trees. I never saw one rise to a greater height than twenty feet, and often they flew within a few inches of the ground, or skimmed the surface of a pool for a yard or two, only to rise again and resume their flight around the alders. Even when close to the surface of the river their flight could never be mistaken for the continuous flight at the same level, just above the surface, of the narrow-winged *V. daubentonii*. One of the Bats, which I captured to make sure of the species, had in its mouth a small beetle of the family *Staphylinidæ*.—CHAS. OLDHAM, Sale, June 17th, 1897.

WALLS AND WALL-NESTERS.

Miss M. L. ARMITT,
Rydal Cottage, Ambleside, Westmorland.

When the world was younger than at present; when, for instance, the Kelt was not yet; when pre-historic man fished in our rivers and lakes, and slew beasts with his flint arrow on the margins of the wood; when dense, impenetrable forest and shrub stretched over vast areas of our island, and closed right up to the strips of fen and marsh land in which the streams then meandered; when all this was, the conditions of bird-life must have been widely different from what they are at present. It is probable that if a naturalist of the nineteenth century could be transported back into those dim regions of time, for a few hours, he would not only cause an electrical shock of surprise to his prototype, but might himself be able to take a few surprising notes.

Specially favourable must the natural conditions of the land have been to birds of forest and of fen. All birds that find life in large trees, and that make their nests in holes of trees, must have thriven. The tree of the wild forest would live its full term of years. Pushing upward, among a thousand starting seedlings, it fought for its chance above of space and light; it grew sturdy and strong, from stripling to giant; it lasted through a maturity of some few hundreds of years; it slowly aged, with rivening bark and breaking bough and hollowing trunk; and lasted till, of sheer decrepitude, it dropped to earth. What trees might be if left to natural decay may be guessed from the hoary patriarch of Yewdale, that needed, in spite of scanty foliage and ribboned bole a wind of phenomenal speed, such as raged here on the morning of December 22nd, 1894, to fell it at last.

It is difficult to realise, in a generation that scarce allows maturity to its trees, that lops its oaks into trunkless brush-wood for bobbin mills, and that fells its quick-planted larch-woods before scar or seam can touch them, what homes of security and comfort the naturally-ageing tree will furnish for birds! Indeed, the connection between rotting timber and bird-life is not apparent, because it is rarely seen. But the old tree is very important to many species of birds at the nesting period, when it is of vital importance that the cradle of their helpless offspring should be placed in a security sufficient to outwit their numerous foes. Birds evade danger by different methods, some building mossy cups in the inner forks of dense bushes, others weaving hammocks of bent in thickets of undergrowth, others twining a nest beneath the unsuspected clod. But no site is so safe, so cosy, or so snug as the hole of a tree; and, probably, none is so ancient of usage.

Aug. 1897.

Even now, scarce as old timber is, birds of many species still seek the retirement of hole in rotting tree-trunk or bough, wherever such can be found, in which to breed. And it is probable that there may have been in those far-off days many more species of hole-nesting birds, before the slow shrinkage of forest area began by Keltic axe and Saxon fire. It is probable, too, that the hole-breeding species now in existence were then much more individually numerous.

Indeed, we may almost watch, in these latter days, the last flickerings of some racial life or other that depended wholly on trees for a homestead. The Wryneck is a case in point; very rare now it is, yet clearly, a century or so back, it was moderately common. It was known as the companion of the Cuckoo; its strange laugh was welcomed as a sound of full spring, when it returned to build in the old orchard tree. But its rarer occurrence in Cumberland was already noted by Dr. Heysham at the close of the last century, and it is now, as far as Lakeland is concerned, totally extinct. There is again the group of Woodpeckers, probably once larger than now. These are unalterably associated with forest life; for, like the Tree-creeper, they not only nest in hollow trunks, but they are anatomically constructed for that course of tree-bole perambulation by which they live entirely; therefore they require large trees. There are three species of Woodpeckers in England now, and they are surely rarer than of old. Only one, I believe, holds out a precarious existence in Lakeland. An old Windermere boatman told me of one of its habitats, but I have not met with it.

But if we consider the nesting propensities, not solely of birds of the pure forest type, but of the whole range of species, and note how many there are (even of those that are independent of trees in food-getting) that yet seek some kind of hole to breed in, we may guess how large a dependence on old timber the birds of pre-historic times must have had.

Among birds of prey there are the Owls. According to Yarrell, the Scops Owl and the Little Owl, as well as our well-known Tawny Owl, breed in trees; while the Barn-Owl, who in its mouse-seeking proclivities has cutely associated itself with man and man's rural dwellings, will still occasionally make shift with a tree. Amongst Crows (*Corvidæ*) the Jackdaw loves a dark hole; and if he does not find it in a chimney or a church tower, will fall back upon the possibly ancestral habit of a roomy and hollow trunk. The Starling is a true hole-breeder, and though it has, as a species, placed itself confidently and almost wholly under the protection of man, and thrives mightily in consequence, it may be found nesting

in trees sometimes. The patriarch yew before mentioned held each summer a brood or two of nestlings in its rugged tower of trunk.

Amongst the smaller Passeres are many hole-nesters. The Pied Flycatcher is one; while its fellow, the Spotted Flycatcher, though always seeking solid support for its slightly-constructed nest (which indeed comes to grief pretty often from an ill-chosen site) prefers a more open situation, and will build against the arm of a tree, or in a concavity of lopped bough. The race of true Warblers, deft weavers as they are, need nothing but a slope of ground or spread of fine bush-bough on which to rest, or from which to swing, their light and well-twined cradles. But the Redstart, near them in class, is an inveterate hole-nester. So too is the Black Redstart, which does not nest in England.

Amongst the Chats, while others seek the open, the Wheatear wants a hole. The Tree-Creeper and Nuthatch are unequivocal hole-breeders, associated entirely, like the Woodpeckers, with trees, which they practically never leave.

Then come the Titmice, notable examples all of them, except the Long-tailed and the rare Bearded, of this ancient and simple style of nesting. It is remarkable that the two exceptions in this large family of purely cushion-builders (for nothing more than a heap of material is needed in a hole; it is the easiest form of construction) are the most exquisite and skilful of avian architects.

Amongst Wagtails, the Pied seeks hole or cover, though entirely apart from arboreal life. Pipits and Buntings, as well as sunshine-loving Larks, favour the open. Finches, too, are skilful builders, and do not fancy a tunnel for their homes. Yet, even amongst them, there is one, the Tree-Sparrow, that pecks a hole in rotten wood (oft of pollard willows) and nests therein.

As for Swifts and Swallows, how shall they be classed? The former chooses a dark aperture, but it is below the roofs that man has wrought; the latter seeks his chimneys and his barn-timbers for nest-support and shelter. The Martin keeps to the full light of his outer-wall eaves. What was the pristine habit of these shelter-loving birds? Have they, the true inhabitants of air, evolved alongside of man, and spread as he spread, building from the first against his clay-and-wattle walls, their clay-and-spittle shelter for their unfledged young? Have they never known an existence wholly separated from him? or did all the Martins build, as I have seen a few do yet at Kilnsey Crag in Yorkshire, and the sea-cliff at Saltburn, against precipice and scar? And did all the Swallows come from a common parentage with those that yet build their sticky nests against the roofs of dark and rocky caves?

Aug. 1897.

One species of bird we have left to us in England that has not forsaken the primitive shelter of the cave, which was what man himself was once contented with, before he was cunning enough or industrious enough to construct a house for himself. This is the Rock-dove; but with such a case, remote, like the Kingfisher that resorts to an earth-tunnel and the Sand-Martin that picks a little cave of its own, from even the slightest tendency to tree trunk-nesting, we have nothing to do.

We are even too far afield! But this surely is a goodly list of hole-breeders; and if so many species of birds are even yet addicted to nesting in hollow trees, how do they escape extermination in these latter days when timber fails, as it does, more and more? How, but by adapting themselves to circumstances, and taking any sort of a hole, in whatever substance it occurs? The birds that have not shown this adaptability have doubtless perished, or are fast doing so. The astuteness of the family of Titmice on this point is remarkable, and many a comic choice of a nesting-hole, in rural letter-box or the like, is continually being narrated of them.

But it is here that the question of our own neighbourhood comes in; for it is only by studying what lies about our doors that knowledge can be gained. In a mountain region like this, practically destitute of forest land, hole-nesting birds yet are abundant, both in species and individual. Why? Is it not that they find in man's handiwork opportunities peculiarly favourable for the propagation of their kind?

The style of architecture prevailing in the Lake country is no doubt primarily due to its geology. No serviceable clay is found for brick-making; the rock yields a hard slate not readily worked, nor amenable to neat and trimly-mortared structures. Therefore, rough and frequently unmortared piles are reared for farmsteads; the dwelling part of the settlement is rough-cast outside for warmth, while the byres and outbuildings remain free, and exhibit endless apertures that lie between the ill-fitting slabs of slate. The 'dry' walls, too, substantial, high, skilfully 'cammed' at the top and of necessity wide, are riddled through with holes, and tortuous passages open to the air. When this style of building first obtained, who shall say? The Brythons that clung to our mountain fastnesses when hard pressed by the Saxons knew how to build in stone; they had learned it from the Romans, whether they used it for domestic purposes or not. But the walls that now stretch everywhere over our fells, and serve to mark the limits of property, must of course, in their vast extent, be of comparatively recent placing.

Naturalist.

Now it is in these walls, as well as in the open sides of out-houses, that birds very frequently here place their nests; and it has seemed to me that the birds that do so place them are more common with us than elsewhere. If so (though in this I may be mistaken) our stone walls have multiplied the life of those species of birds that have adapted themselves to the nesting chance thus offered.

Of these species the most prominent example is the Redstart. It is a bird evenly distributed, I believe, in summer over England; nowhere described as common, and in some places rare. It is distinctly common here. No one has yet seemed to realise the large number that breed with us every year. Perhaps I have been favourably situated in a Redstart centre, so to speak. At all events I have tried to compute sometimes the adult population of Redstarts settled here for nesting purposes—roughly, indeed, for a bird census is by no means easy to take! One can mark, however, the station taken up by the male bird, where in an extremely limited area he may always be found, singing and disporting himself in that period when the unseen hen is attending to her nesting duties. This is towards the end of May. In a favourable season I have passed in a walk of two miles five Redstart breeding stations; while turning in another direction I have passed three in a mile and a half. Another year, in a walk of about three miles, I have passed seven or eight stationary singers. Another good year (1894), in a stroll of perhaps four miles, I have counted seven males; and though this time—the end of April—it was too soon to be certain they were settlers, later they became, if I may so put it, more perplexingly numerous still. I clearly fixed three males settled on the precincts of one farmstead alone, and at least three about another small group of dwellings. In an experience of nine years I have not known this bird to nest in a tree, though I understand it often chooses that site elsewhere; and only twice has the site been a natural one—once in a crevice of a bold up-standing rock, and another in a deserted quarry niche, so not quite natural after all!* It is the walls and the byre-sides, where open masonry prevails, that contain the numerous nests of the Redstarts. The hole for the nest is chosen with care. I have often caught a pair of Redstarts—the

* Since the above was written, upon experience gained upon the upper slopes of the Esthwaite valley, I have found the Redstart's nest at last in a tree, placed in a niche of a pollard ash. My removal to a new locality of Lakeland, where old park timber offers plentiful nest-room, has furnished the interest and pleasure of watching how many birds take advantage of it. I hope to furnish some note of them later. The Redstarts here are even more numerous than I thought. In a space barely over one and a quarter miles square, I knew last summer, 1896, the nests (in which the young were all safely hatched) of six pairs, and these did not represent one-half—barely one-third—of the stationed male birds.

hen courted and won—silently exploring holes in a stretch of wall, popping in and out with joyous zeal to find a comfortable aperture. The hen may occasionally be caught building. The nest is made of stuff got close at hand, oftenest moss of the very kinds that cling to the wall in which it is placed; but I have known oak leaves, of the large Scarlet Oak, mainly used. Soft hairs pad it, and fibrous roots and frequently pretty fluffs of lamb's wool or bits of fern. The hen is so nervous, that should her eye be exposed when sitting to the passer-by, she will often flit off her nest before him, though she is indistinguishable herself in the cool shadow; and then the nest is sure eventually to be robbed. Hidden in a deep crevice, however, such as is generally chosen, she is less agitated and therefore safe; and everything goes well till the time the young birds get strong, and need incessant attention from both the parents. Then they have a perilous time of it, if they are on a public road. No birds are more nervous, more fussy and excitable under notice, when they have food to deliver.* Unlike the calm Chaffinch, who does but—when he comes back to his nest with a nice fat caterpillar and finds a watcher by—eat it up himself, and then, after cleaning his beak, flies off again, leaving the watcher no wiser than before, these birds flit round with food in beaks, crying distressfully, unable to leave. Neither will they, while the watcher's gaze is directly on them, enter the hole and betray the secret. This may generally be found out by a little stratagem; but it is remarkable how much they are under the influence of the human eye and understand its power. Once both birds were in an ash tree that overhung a wall, where clearly their nest-hole was, crying with impatience while I lingered to compare their cries. I had put up my field-glasses to scan better the features of the dun hen, when, as I dropped them, I perceived the male bird in the act of flitting away from the wall and disappearing carelessly. He had, it was certain, deposited his burden of food while my gaze was concentrated on his mate. I thought then that the hen would follow his lead if I kept statue-like. But, no! back and forth she flitted in the ash, crying 'hoo-ie,' but never daring to drop to the wall while I stood there. This went on till the male came back with more food; and then, emboldened by his late cunning, he flew straight in to the hole under my very eyes, and thus betrayed it. Then I was able to follow as far as the masonry, and peeping into the right tunnel, to see a little crowd of speckled, bright-eyed youngsters, almost ready for flight.

* I have since watched them feeding their nestlings on a great highway, crowded through some hours of the day with traffic; and they are then much more guarded, and wonderfully adroit and quiet.

After the Redstart, the race of Titmice claim attention as wall-nesters. Three out of the four species that are hole-breeders (for the Marsh Titmouse still apparently insists upon a tree) make extensive use of our masonry. And yet they are not, like the Redstart, exclusively devoted to walls. Great, Blue, and, I believe, Coal Titmouse will gladly breed in a tree if a suitable aperture can be found. But so scarce is this desideratum that I have known both Great and Blue Titmice contest a good tree-hole with the Pied Flycatcher. Very comical it is to see the site-seeking instincts of these birds awake over a fallen tree. A pair of Great Tits once drew attention by their excitement over a larch tree that had lately snapped in a storm, and had fallen over some six feet from the ground. One bird poked in and out of the splintered pieces, flirting its tail with the liveliest gestures, and '*churring*,' as much as to say to the attendant mate, 'Here, I do believe, is the very spot for us to nest in next summer! Most providential, that gale!'

Yet this was on the 10th of January! and so winterly a month, too, that the snow lay deep on the ground. The Great Titmouse, however, is a faithful lover, and keeps company with his mate all through the dead season. Often in the depth of it he may be heard trying (for her benefit, no doubt) his spring note; and the 'saw-sharpening' had sounded close by that tree on the 26th of the previous month.

Still it is the rule of the three species named to nest in our masonry. It seems to me (though theories are dangerous!) that they are more particular than the Redstart to secure a cosy, sheltered hole, either in a banked-up or a verdure-clad wall, or in a byre side sheltered by tree. The Redstart that winters in warm regions will in summer nest in the barest and bleakest of walls, through which it can sometimes flit in and out on either side; and I have known the nest so exposed to draught, that the plumelets that decked the heads of the baby-birds within the nest waved in the chill evening air. The Titmice, besides, are fond of having a tree or bit of hanging bush before their orifice, on which they may pause before entering. Most prudent, silent, and wary are they; and it is interesting to observe how cunningly their conduct varies with circumstance. For instance, two pairs of Blue Titmice, each engaged within a quarter of a mile of each other in the laborious task of feeding a nestful of youngsters almost ready for flight, acted with a marked difference when watched. The pair whose nest was wholly out of reach in the wall of a stable seemed aware of its safe height; they attended the watcher, who disturbed their ministrations to the noisy little ones, with angry and chiding sounds. The other pair, whose

treasure-hole was in a wall not four feet from the ground, and well in reach, kept almost entire silence, waiting at a little distance for the intruder to pass on. The youngsters, too, though rasping when fed, as all nestlings do, made much less noise than did the safe brood. The Blue Titmouse, indeed, understands well the axiom of silence. I have followed a Blue to the hole into which it had darted, and not a sound or movement betrayed the life within; yet, when peering eye grew accustomed to the darkness, a crowd of little heads was visible, with the parent crouching protectingly in front, waiting under the shield of stillness for the terrible moment of danger to pass. How much, indeed, depends on this caution, when the nest opens on to a public road, and the parents' visits are constant and increasing! It is really a wonder a nest so placed ever escapes; and many a big gap in lonely road wall shows where ruthless hands have torn the structure, to reach and rob the nest which has been placed deep within it.

The Coal Titmouse, too, loves a wall adjacent to the woods it frequents. There, in a shady, moss-grown stretch, backed up by slope of earth, where scarce a stone is bare of green, and seedling plants—herb-robert, shining crane's-bill, wall-rue saxifrage, wall lettuce, primrose, foxglove even—start and flower, one may sometimes see a wee bird pause fluttering, in front of the rigid line of greenery, and then disappear in its depths. It is a sight to make one curious; it means a secret homestead within the hidden masonry, the generation of species in a tiny winged being, with all the joy and pain and care that attend the process.

The Great Titmouse has more frequently, I believe, its nest well out of arms' reach. The pair will, perched upon adjacent boughs, scold the biped whose interest is too clearly excited in their domestic affairs.

The Starling is, of course, a most regular 'lodger' in our buildings. Every outhouse, byre, or stable has in May its brood of nestlings, eagerly crushing and screeching for food within the upper stones; and it is with the boldest unconcern that the parents fly back and forth.

Then the Pied Wagtail, that trips so daintily about the roofs, has its nest somewhere in the farm premises, and sometimes in a road-wall, though it is kept so secret as to be rarely discovered. Hardly any amount of waiting will induce these birds—laden though their bills may be with flies or moths—to enter their hole while a watcher is by. They lie low successfully. They can out-manœuvre man, where they are helpless before a smaller enemy. I have seen a pair

literally dancing in the air over a ruined cottage, like toy-birds strung to a vibrating elastic, uttering most distressful cries, while a long-backed weasel scaled with ease the ladder of stones and crept to its helpless prey, whose parents were powerless to save them.

The Wheatear's nest, on the other hand, is usually far from dwelling-place of man. Once, indeed, I saw a Wheateat feed its young in a wall that faced a country railway-siding, where the iron-soil that stood in laden trucks had bestrewn the place and the birds' feathers too with a uniform red tinge. But that was an exception. The Wheatear loves the wildest bit of fell-side pasture here, where low down in some 'dry' boundary wall he and his wife fix up their nursery and cushion it roughly.

These are the birds that consistently follow the 'waller,' as Lakeland builder is called, and that trust their nesting-fortunes almost wholly to his handiwork. But others there are that take to it on occasion.

The Tree-creeper, even, a veritable arboreal species, will occasionally bring up its young in the cool recesses of stone. A nest was once shown to me, in the quiet back of a stable, sheltered by trees, where again next year a nest was placed, doubtless by the same pair. If the bird perseveres in this habit, it may be, in the dearth of hole-ridden trees, the salvation of its species. It may eventually become, when woods are gone, not the Tree but the Wall-creeper. Already it practises a little in this direction; and it may be caught ambling up our moss-laden walls sometimes in search of food. To be sure, on this uneven, jutting ground, its tail is hardly such a comfort to it as on smooth tree-bole; but, doubtless, in time it would arrange all that and accommodate its tail to circumstance.

So tempting are our walls that I have seen the lovely moss cup of Chaffinch's nest, and even the skilfully-woven one of the Thrush, placed on jutting moss-grown slab of stone.

Last and most interesting is the case of the Pied Flycatcher. In three different seasons have I seen this bird pass in and out of building holes intent on a nesting-site, and twice in full use of it. All these were high and out of reach, two in the same barn but on different sides (doubtless the occupiers were the same pair or their immediate descendants), one in the back of an empty dwelling-house, closely shaded. Two other nests in walls I have been told of. Now there is evidence that this beautiful bird is on the increase. It is clear that the tree-holes natural to it for breeding purposes are hard to get, since it has to contest them with Titmice, which are far stronger. And it may be possible that wall-holes (which surely must be colder than hollow trees!) may not be wholly congenial to it.

Aug. 1897.

Why should not Lakeland dwellers in quiet places seek consciously to accommodate it? just as the waller has unconsciously accommodated many other species. Nesting-boxes are extensively used by birds in some parts of the continent. I have known, in that beautiful Lakeland of Austria, the Saltzkammergut, a garden where tiny wooden houses erected on tall poles among the shrubs were inhabited by various species of birds, the Black Redstart among them; and wooden boxes are already used in many English gardens, it is pleasant to know. Why should we not try by means of this sort to foster the race of Pied Flycatchers, and so associate another bird with man? [This suggestion has happily been realised during the present summer in adjacent garden-ground, and a brood of youngsters has safely flown from a box.]

NOTES AND NEWS.

Our contemporary the 'American Monthly Microscopical Journal' for June 1897, reprints in full from our pages Mr. J. Newton Coombe's account of 'Algæ found at Roche Abbey, July 11th, 1896,' with due acknowledgment of the source.

Our Lancashire naturalist friends are doing excellent work in the neglected field of Irish zoology, and we are particularly well pleased with the report given by Messrs. R. Standen (general), Lionel E. Adams, B.A. (Land and Fresh-water Mollusca), George W. Chaster (Marine Mollusca), and J. Ray Hardy (Coleoptera) on the Fauna of Rathlin Island and the Ballycastle district, which appeared in the 'Irish Naturalist' for July, and of which a reprint lies before us. Mr. Standen's notes include some on almost all departments of the fauna, from mammals to insects, and also some few observations on the flora with a short list of seaweeds. Mr. Adams gives a list of 34 land and fresh-water mollusca taken on the isolated and oft inaccessible Rathlin Island, as well as additions to Mr. Standen's Ballycastle list. Mr. Chaster's notes include some useful synonymic observations, and Mr. Ray Hardy enumerates 86 beetles for Rathlin Island. We trust to hear again and again of similar work undertaken by the same energetic naturalists.

'**The | Concise Knowledge | Natural History** | by | R. Lydekker, B.A., F.R.S., V.P.G.S.; R. Bowdler Sharpe, LL.D.; | W. F. Kirby, F.L.S., F.E.S.; W. Garstang, M.A., F.Z.S.; | B. B. Woodward, F.L.S., F.G.S.; F. A. Bather, M.A., F.G.S.; | R. Kirkpatrick; R. I. Pocock; and H. M. Bernard, M.A., F.L.S. | with 530 Original Illustrations by | J. Keulemans, F. H. Michael, Ernald W. Miles, | Frank C. Aldworth, and other artists | London | Hutchinson & Co. | 34 Paternoster Row, E.C. | 1897' is a stout octavo volume of xvi.+771 pages, in which a brief and popularly-written account of the animal kingdom is given. The arrangement is in systematic order, from Man to the Infusoria. From the half title and the preface we learn what the title-page ought to show: that the book is edited by Alfred H. Miles. A concise systematic index precedes the main body of the work, which is followed by a full and satisfactory alphabetical index. As might be expected from the array of well-known names displayed on the title-page, the information is for the most part to be thoroughly relied on, and is conveyed in plain and simple language, and there is no overloading with technical anatomical detail. The use of side-heads much facilitates the consultation of it, and the illustrations, though somewhat lacking in finish, will be found useful. The price is five shillings, and the book may be recommended to all who desire a general work less cumbersome and expensive and more handy than Wood's or Lydekker's well-known books.

LINCOLNSHIRE NATURALISTS IN THE GAINSBOROUGH NEIGHBOURHOOD.

REV. E. ADRIAN WOODRUFFE-PEACOCK, L.Th., F.L.S., F.G.S.,
Vicar of Cadney, Brigg; General and Botanical Secretary Lincolnshire Naturalists' Union, and Curator of Lincolnshire County Herbarium.

ON the 9th and 10th of June, the L.N.U. held a two days' meeting at Gainsborough. As this was the first double meeting the Society had undertaken great things were expected from it and a larger attendance of members than usual; but the uncertain state of the weather and the nearness of the Jubilee proved disastrous, and the smallest June meeting ever held was the result. The 8th was wet from morning till night and the 9th till 1 p.m., when the clouds floated away and the weather continued fine for weeks. That afternoon found four enthusiastic workers in the field—Messrs. F. M. Burton, W. Fowler, J. Gurnhill and the writer. Lea parish in Div. 6 was the locality chosen. The ground was very wet if the air was balmy, and little or nothing rewarded their diligent search of woods, fields, lanes, and fenland ditches. *Sisymbrium Thalianum* J. Gay, in a poor seed field, closely eaten by sheep, was rather an unexpected find, though the species is not uncommon. *Avena pubescens* Huds. was the best grass taken, a species often looked over apparently. The common species of the county were in profusion and were noted for the northern part of this Div. 6, but the day was a failure as regards new or good records.

On Thursday, the 10th, some thirty naturalists came together to visit the richest botanical ground in the country, Scotton Common and Laughton Warren, in Div. 5. These have been famous natural history hunting grounds in every department for over a hundred years. The dry seasons of the last decade have shorn these wild spots of some of their rarer floral treasures, but otherwise they remain pretty much as they were since they were partly planted some sixty years ago.

Mr. F. M. Burton, F.L.S., F.G.S., writes on the geology :—

Starting from Gainsborough on the Keuper beds of the Triassic rocks at the top of the primary series, we continued on that formation till we reached Blyton Hill, where we got on to the Rhœtics—a section of which can be well seen in the railway cutting there. Thence continuing, from Blyton village, for some distance on the Rhœtic strata—a narrow band of which runs up the west side of Scotton Common, and skirts Hardwick Hill at the northern end—we got on to the base beds of the Lower Lias, which formation borders the Rhœtics on the east, and which, between Blyton and Laughton, is covered by boulder clay; and, on the Common, by blown sand.

Going northwards over the Common, we crossed the Rhœtic strip again at the foot of Hardwick Hill, and got once more on the Keuper. This hill stands out as a landmark which can be seen from a great distance, and from it, a very fine view of the Trent valley, before it merges into that of the Humber, is obtained. It is difficult at first sight to believe that this wide area was once—and within comparatively recent times—high ground, through which a few miles further to the north, the Humber—then a comparatively small river—flowed eastwards to the sea ; and that so wide a valley as we now see is the result of the gradual drainage of the land on the Humber side. At first the only sign of all this waste of the land would be a mere rift or gully, down which would flow a little stream ; but, as the Humber deepened its bed, the rift would grow wider and deeper year by year, the stream would increase in volume, 'a rivulet then a river,' until, at last the lateral valley we now see was formed—of such extent that the head of it reached the Trent on the south, tapping its waters, and compelling it to change its old course through the Lincoln Gap for its present bed.

This Keuper outcrop, forming Hardwick Hill, stood out once as a low headland on the Trent side, when the river ran at a higher level than it does now ; and, on it, the capping of sand and gravel, which has for years protected the underlying Keuper beds from the rain and forces of the atmosphere, and prevented them from being swept away, was deposited.

Descending Hardwick Hill on the northern side, we got on the alluvium of the Trent, with patches of blown sand, here and there, at intervals. This blown sand is met with in vast quantities over large areas to the east of the Trent ; and, wherever it comes in contact with the alluvium it passes under it, showing that the sand is the earlier, or older formation of the two. These sand-beds are a feature of great interest in this neighbourhood. They are found, not only on the borders of the Trent valley, but much further inland ; and, wherever they are met with, their rounded, dune-like shapes show their æolian origin. They were formed when the Trent flowed at a much higher level than it does now, and when the tides were probably stronger ; and they are the result of wind action, blowing up the loose, low-lying tracts of sand over the elevated ground on the east.

Messrs. A. Fieldsend and F. M. Burton have drawn up the following list of birds observed, and I have added a few notes from my thirty years' experience of the ground. Black-headed Gull. Old birds, first year birds, young and eggs in vast numbers. This gull pond is an offshoot from the famous ponds at Twigmoor, and

the birds have not built here many years. The Black-necked or Eared Grebe (?)—*Podiceps nigricollis* of modern writers, *P. auritus* L., I believe. Mr. Fieldsend, who saw it, writes:—'The Grebe I saw on the gull pond on Scotton Common was a young one with a dark stripe running down the side of its neck. It was swimming by itself. Without careful measurements and handling, it would be impossible to say for certain what it was. It may have been the young of the Great Crested Grebe (*P. cristatus* L.), but I did not take it for it.' *P. auritus* L., according to Mr. J. Cordeaux's Birds of the Humber District, 'like its congeners, once bred in our fens. It now only occurs as a very rare and occasional visitant.' Little Grebe, Teal, Wild Duck, Snipe and Redshank all breed or have bred here. The Shoveller and the Sheldrake may be seen with their young each year. Herons visit the various ponds from the Appleby Heronry. The Ring Dove is found in plenty in the woods. The Stock Dove on these commons always breeds in rabbit-holes on a declivity. Elsewhere it frequents the open tops of pollard willows, thick ivy on the walls of buildings, more rarely trees, rabbit-holes in gravel pits or beck banks. The Turtle Dove, which was a very rare bird indeed twenty-five years ago, is common enough now, and breeds with us every season. The list contained also the Jay, Black-headed Bunting, and Redstart.

The Common Brown Lizard is plentiful on the dry sand hills and rough ground. The Grass Snake is common too, the Viper rarer, but neither were observed on this occasion.

The following notes on the entomological results of the excursion were kindly communicated by Mr. Jas. Eardley Mason:—Diligent beating of the small birches failed to discover a single individual, immature or otherwise. The only record is *Notonecta glauca*, in a very immature state, a fortnight later at least than Lincoln specimens. The botanist's pace, with which I was bound to keep up, forbade systematic searching of any area of the rough ground. Amongst the Coleoptera, *Elaphrus riparius* was noticed as mimicking *Salda lateralis* (Hemoptera), to the discomfiture of the recorder. *Zootoca vivipara* (the Lizard) was abundant. A large number might have been taken, as were two by the recorder, by smartly falling at full length upon them the instant of their being seen.

The Rev. W. Fowler writes:—Several mosses were observed in the woods about Gainsborough and on Scotton and Laughton Commons, the most interesting being *Leucobryum glaucum* Schp. and *Hypnum exannulatum* Gümb. The lichen *Cladonia rangiferina* Hffm. was very abundant on Scotton Common, as it is also on others in North Lincolnshire. *Lycopodium clavatum* L. and

Selaginella spinulosa A.Br. were also observed, but *Lycopodium inundatum* (which is to be found there) was not seen. It was too early for any fungi, with the exception of two or three common species.

In regard to the species recorded in Part I. of the London Catalogue of British Plants, 9th ed., little or nothing that has not been recorded over and over again in *The Naturalist* can be said. All the common and many of the rarer sand and sand-bog species were observed, and our notes practically become a record of what was absent or not found. The dry seasons since 1893 have been most destructive as far as our experience goes. *Drosera anglica* Huds., which flourished here twenty years ago, has not been taken during the last six seasons; and *D. intermedia* Hayne is nearly as rare and confined to the Laughton side of Scotton Common. *Peucedanum palustre* Mœnch, which was taken as late as three seasons back, seems now quite extinct. I have hunted for both these rare species twice since the meeting, but without success. *Stellaria palustris, angustifolia* Maison, according to Mr. Arthur Bennett's naming, was there, but the varietal form was not quite as characteristically marked as formerly. *Myosotis collina* Hoffm. and *M. versicolor* Reichb. were both taken within a few yards. *Teesdalia nudicaulis* R.Br., was taken in a lane on Laughton Low Warren. It is either local or seldom recorded. The recovery of *Carex elongata* L. may be considered the best botanical effort of the day. It is only found on Laughton Warren and has not been taken for fifteen years. *Lastræa Thelypteris* Presh. was the best fern seen. *Lycopodium clavatum* L. was taken for the County Herbarium, but *L. inundatum* L., much more frequently taken, was not seen. *Selaginella selaginoides* Gray is still left in good quantity. On the whole the day was disappointing botanically, for not one of the three species specially looked for turned up, and not a single new record was made. Two subsequent visits proved equally fruitless; and yet it would seem folly to imagine so large an extent of common surface—the best botanical ground in the county—is quite exhausted. Mr. Sam. Hudson brought *Thalictrum collinum* Wallr. from near Epworth, in Div. 1, for the County Herbarium, confirming his own record for this species and that of Mr. J. Burtt-Davy for Tathwell, Louth, in Div. 8.

NOTES AND NEWS.

We are in receipt of another of Mr. Arthur Bennett's valuable papers published in the 'Journal of Botany.' In this—the second—instalment of his 'Notes on British Plants,' he treats of the genus *Carex*, given in the sequence of the 9th edition of the London Catalogue.

WHITE WORMS AS PLANT PESTS.

Rev. HILDERIC FRIEND.

In Johnston's *Catalogue of British Worms*, published in 1865 by order of the Trustees of the British Museum, the white worms or Enchytræidæ are represented by one species only, which was named *Enchytræus vermicularis*. One sentence, however, relating to the habitat is significant. We are told that it is found 'in the soil under the bark of rotted trees, in decaying leaves, and at the roots of decayed vegetables.' What surprises us is the fact that after all that has been done to extend our knowledge of these annelids, scarcely a note has been written in relation to the economical side of the question, or the relation of the white worms to plants. Found at the roots of decayed vegetables: but for what purpose? Why there? Have they produced the decay, and so proved to be injurious pests; or have they been attracted to the plants after decay has set in, and so played the invaluable rôle of scavenger and general refuse eaters? While Henle and Grube, Vejdovsky and Michaelsen, with a host of other investigators, have been busy identifying and classifying new species, no Darwin has arisen among them to deal with this all-important question.

This cannot be owing to lack of material, nor can we attribute the fact to ignorance of the characters of the white worms, seeing they are easily distinguished from grubs, larvæ, eel-worms, *Tylenchi*, and other parasitic and injurious creatures. We may go further and say that it is not owing to the fact that white worms are rarely found associated with decaying vegetables, because the exact opposite is the case. Do we wish to find specimens, we always turn to the decaying vegetable matter in the wood, the farmyard, and the garden refuse heap, or pull up plants which are sickly looking, and examine the roots of grasses which show signs of collapse.

Among the very few notices which have appeared throwing light on this exceedingly practical and important subject, one of the earliest consisted in a communication to the pages of *Nature* some eight years ago. Mr. Allen Harker wrote from the Royal Agricultural College, Cirencester (*Nature*, vol. xl., p. 11, May 2nd, 1889) with reference to A New Pest of Farm Crops, and drew attention to the fact that some form of white worm, related to, if not identical with *Enchytræus buchholzii* Vejd., was found at the roots of clover at Rothampstead, and in association with decayed flowers at Little Dean, in such a way as to suggest that they were the cause of decay. Mr. Harker, who does not seem to have seen the hint

supplied by the quotation from Johnston's Catalogue, remarks that it has not been customary heretofore to suspect the white worms of damaging plants, but thinks the evidence he has adduced is quite sufficient for establishing a charge of guilty. He reminds us that though Vejdovsky published a large and invaluable Monograph dealing entirely with the Enchytræidæ, that author does not appear to have had any suspicion of the pestiferous character of the genus *Enchytræus*, or of any of the species. Similarly in the splendid *Monograph of the Oligochæta* which Mr. Beddard has recently produced, we have not a single sentence throwing light upon the subject. In all eleven genera are grouped under this family name, and some sixty species are described—a number which has during the past two years been considerably augmented by the researches of American, Continental, and British investigators—yet nothing is said of the parasitic character of any of them.

I have during recent years given considerable attention to this amily, which will be considerably enlarged when all our British species have been investigated and described, and I am now able, not only to make general allusion to the parasitic nature of several of the species, but particularly to adduce a concrete illustration. In general I may say that a large number of species belonging to the genera *Fridericia*, *Marionia*, *Enchytræus*, and *Henlea* especially, are always most readily found either in and around the roots of grasses, flowers, and plants, or among vegetable debris and farmyard manure. They flourish amazingly in stable muck, and are therefore almost invariably abundant in frames and where plants are being forced. It may happen, however, in such cases as a rule, that the worms are so well supplied with nutritious and congenial food that they do not need to adopt a parasitic mode of life, and so the plants may flourish despite the presence of creatures which under adverse conditions would prove destructive pests.

It has fallen to my lot, however, during the past month of July to investigate a case in which the parasitic character of the white worm is so striking and patent, that, in the interests of floriculture, I feel it my duty to state the facts. On July 26th I was asked to inspect some beds of China Aster a few miles from Birmingham, and give an opinion on the cause of their sickly appearance. The grower prided himself on the beauty and perfection to which he had brought his flowers in former years, and was greatly distressed to find them this year an utter failure. When specimens of the affected plants were lifted by the roots I instantly detected a number of very minute worms busily working their way under the epidermis. I naturally concluded that they were the well-known Nematoid, but

fortunately took some plants home for microscopical examination, when it was immediately patent that the worms belonged to the Enchytræidæ. The worm is very nearly allied to, if not identical with, Dr. Michaelsen's *Enchytræus argenteus*, but as it is new to Britain, and may also be new to science, I have named it provisionally, on account of its minuteness, *Enchytræus parvulus*, the name *minutus* having been already appropriated by Tauber. This tiny worm, which is a true *Enchytræus*, as distinguished from *Henlea*, *Fridericia*, and others, is from 3 to 5 mm., or about one-eighth of an inch in length. It is destitute of coloured blood, and when working at the roots has a silvery appearance. There is a large head pore between the prostomium and the first segment, through which the contents of the cœlom and head are poured when any undue pressure is brought to bear upon the worm. The girdle is in the normal position on segment XII., where the ventral bundles of setæ are wanting and a pair of large pores associated with vase-shaped glands may be seen. The girdle is somewhat papillose, the first six or seven segments are pellucid, while the corpuscles which surround the viscera of the remaining segments are dark. The brain is pear-shaped, rounded off or convex behind, and attached to the nerve-cord which tends to enlarge between the third and fourth segments. The character by which those who are not specialists in annelid anatomy will best recognise it, however, is that which relates to the setæ. There are four bundles in each of the 30 segments except the first and twelfth. In the hindermost ten or dozen segments they are in triplets, four sets of three, making twelve setæ in each ring, whereas eight is the number in the earthworms. In the first eighteen or twenty segments, however, while the ventral setæ are in triplets the lateral are in pairs. Thus the arrangement is 2 : 3 : 3 : 2 in front, and 3 : 3 : 3 : 3 behind. This number is regular, and not, as in some species, variable.

It remains for me to add that if any florist or gardener detects such a pest at the roots of his plants there is nothing for it but to remove them at once and consign them to the flames. As different species may, however, be expected to attack different plants, and as different localities will yield different species, it is desirable in the interests of science that they be submitted to an expert for examination and identification. So far as I may be able to render assistance in this respect I shall be happy to do so, and plants forwarded to my address (Ocker Hill, Tipton) will receive my best attention. Should consignments be forwarded to me, kept moist in tin boxes, a stamped envelope must be enclosed if reply is desired, and every particular calculated to throw light on the subject should

Sept. 1897.

be added. It is always helpful if we know the nature of the soil, manure employed, length of time during which the plant has been grown, and other similar facts. There is room for much valuable work here, and those who will render assistance will do the plant-loving public a lasting service.

NOTES AND NEWS.

We are pleased to learn from a circular sent us by the Rev. W. H. Painter, that he proposes shortly to issue, if a sufficient number of copies are subscribed for, a Supplement to his 'Contribution to the Flora of Derbyshire.' It is to consist of 64 pages, and will be issued at 2/6 per copy and postage. The subscription list will close on the 14th of September inst., and only a limited number of copies will be printed. The Supplement will contain 735 additional habitats of Phanerogamous plants, and also records of all the Mosses known to occur in the Northern and Southern Divisions of the County, 292 in number, most of which have been examined by the late Mr. J. Whitehead, the celebrated bryologist of Oldham.

The mention of Mr. Whitehead recalls to recollection the List of Mosses of the Ashton-under-Lyne district, which he contributed long ago to our pages, and gives us the opportunity of reproducing his portrait from the 'Journal of Botany,' by the kindness of its Editor and publishers. Mr. Whitehead was so thoroughly admirable a representative of the famed Manchester school of botanists that the reproduction of his portrait in a journal devoted to the Northern Counties of England is but appropriate.

'**Birds of | Our Islands** | by F. A. FULCHER | London | Andrew Melrose | 16 Pilgrim Street, E.C.' is the title of a book which lies before us for notice. It is a pleasantly-written series of chapters on our native birds, and well-calculated to amuse the casual reader even if it do not happen to arouse in him a taste for field ornithology and a wish to refer to more advanced text-books. The illustrations are numerous and some of them fairly good. Being sketches from the life, the various chapters are full of interest, and their being written in excellent style adds much to their charm. It is a pity—and a fault—that the book bears no date, and we may therefore record that our copy reached us on the 29th of April this year.

ON THE HEPATICÆ AND MUSCI OF WESTMORLAND.

GEORGE STABLER,

Levens, Milnthorpe, Westmorland.

SIXTH PAPER.

For previous papers see 'The Naturalist,' Oct. 1888, *pp.* 313-320; *May* 1896. *pp.* 133-140; *Sept.* 1896, *pp.* 277-284; *Jan.* 1897, *pp.* 5-12; *and July* 1837, *pp.* 213-220.

Tribe V. *LESKEACEÆ.*

[Myurella julacea Villars. *Leskea moniliformis.* Ingleborough, Yorkshire (Hunt and Nowell)].

261. **Leskea polycarpa** Ehrh. On trunks of trees occasionally inundated. Nether Levens (Barnes and Stabler, 1874); Ferry Nab, Windermere (Clowes); Dallam Tower Park (1869); Levens Park (1868).

262. **Anomodon viticulosus** L. 'By the N.W. corner of the bridge at Kirkby Lonsdale' (Dr. J. E. Smith, 'Withering's Arrangement,' A.D. 1796); on walls, Natland (J. Just); Halhead Brow, Crook (F. Clowes); Gilling Grove, Kendal (T. Gough); Brigsteer Wood, fruiting freely (Barnes and Stabler, 1868); Whitbarrow (1871); Pooley Bridge; on a wall, Rydal (1887); Kirkby Stephen; Deep Ghyll, Mallerstang (1886); Levens.

263. **Pseudoleskea catenulata** (Brid.). *Leskea catenulata* (Brid.) Mitt. Levens Force and by the river Kent, on limestone rock, at the Sedgwick Gunpowder Works (1869); the Falls, Maize Beck (J. G. Baker); Dollywaggon Pike and Tarn Crags (Binstead, 1886).

264. **Heterocladium heteropterum** (Bruch). Rydal (Barnes, 1868); Hill Bell (1868); Kentmere Hall (1869); Staveley (1871); Naddle Forest (1869); Ulpha (Barnes, 1871); Witherslack (1872); Barbon Fell (1888); Wildboar Fell (1888); Grisedale (W. B. Waterfall, 1887).

265. **Thuidium tamariscinum** Hedw. In woods, High Wray (Wilson Armistead); Heversham Head, c.fr. (Barnes and Stabler, 1868); Windermere (F. Clowes); Levens Park (1881); Whitbarrow; Mardale (1887); Angle Tarn; Long Sleddale; Patterdale (W. B. Waterfall, 1887). Thomas Lawson gathered this species on Swarthmoor near Ulverston, some time between 1670 and 1677, as shown by his MSS.

266. **Thuidium recognitum** (Hedw.) Lindb. Honey Bee Wood, Barrow Field (1868); Rusmickle, Whitbarrow (Barnes, 1870); on rotten stump, Kentmere (C. H. Binstead, 1886); common at Kendal, on roadside leading to Scout Scar (Binstead, 1885).

[**Thuidium delicatulum** (L. Hedw.) Mitt. Lowdore, c.fr. (Binstead, 1889)].

Tribe VI. *HYPNACEÆ.*

267. **Pterigynandrum filiforme** (Timm.). On sycamore, by the stream entering the upper end of Haweswater (1867); on rocks near Small Water (Binstead, 1887); on rocks by Grisedale Tarn (1893).

268. **Cylindrothecium concinnum** DeNot. *Cylindrothecium Montagnei* Bry. Eur. Near Levens Church (J. Nowell, 1867); Sizergh Fell; plentiful by the highwayside on Helsington Barrows (Barnes and Stabler, 1870); Heversham Head (1882); Mallerstang (1888); Arnside (1893).

269. **Climacium dendroides** (Linn.). Near Milnthorpe railway station (Barnes and Stabler, 1872); Sleddale Forest (1876); Levens (1884); Heversham Head (Barnes and Stabler); Red Tarn, Helvellyn (1886); by river Lune near Ingmire Hall (1882); Mardale; Kentmere; Scandale (1887); Whitbarrow; Low Gill; plentiful in fruit, wet meadows, Grasmere (Binstead, Christmas, 1885); Mallerstang (1888); Grisedale Bridge (W. B. Waterfall, 1887). There are fruiting specimens among Dr. Clowes' plants from Keswick.

270. **Isothecium myurum** (Pollich). Windermere (Clowes); Brigsteer Wood (Barnes, 1867); Kentmere Plantation (1868); Naddle Forest, on a tree (1882); Staveley (1874); Rydal Falls (1877); Crosby Ravensworth (1869); Mallerstang.

271. **Orthothecium intricatum** (Hartm.). *Leskea subrufa* Wils. Yew Barrow in Witherslack and at Whitbarrow (Barnes and Stabler, 1868); Crosby Ghyll, Crosby Ravensworth (1869); Hell Ghyll, Mallerstang (1888).

272. **Orthothecium rufescens** (Dicks.). Above Deep Ghyll, Wildboar Fell, in the Mallerstang Valley (1888). [Near Sedbergh (C. H. Binstead, 1886)].

273. **Homalothecium sericeum** (Linn.). Levens (Barnes and Stabler, 1867); Crosby Ravensworth (1869); Heversham Head (1873); Kentmere Plantation; Place Fell and Patterdale (W. B. Waterfall, 1887).

274. **Camptothecium lutescens** (Huds.). Natland (J. Just); plentiful on Sizergh Fell (Barnes and Stabler, 1868); Barrow Field (1867); Helsington Barrows (1869).

275. **Brachythecium salebrosum** (Hoffm.).
VAR. **palustre** Schpr. *Hypnum Mildeanum* Sch. Syn. Ed. 1. On wet peat bog, Foulshaw (Barnes, 1867); by River Gilpin near Lord's Plain, Levens, c.fr. (Barnes and Stabler, 1880).

276. **Brachythecium glareosum** Br. & Sch. On road-side between Bridge End and Whitbarrow (Barnes, 1868); the Force, Levens (Barnes, 1867); on old walls, rather sparingly, at Witherslack and Whitbarrow (1871); Levens Park, on rocks (1882).

277. **Brachythecium albicans** (Necker). Ulpha Moss (Barnes, 1870); on the Clay Road, Levens (Stabler). [Plentiful on the sandhills near the estuary of River Duddon, N. Lancashire (Barnes and Stabler)].

278. **Brachythecium velutinum** (Linn.). Bisket Howe, Bowness (Clowes); Witherslack (Barnes, 1867); hedge banks, Low Levens (1888); Ambleside.

279. **Brachythecium rutabulum** (L.). Common. Heversham Head (1876); Levens; Deep Ghyll, Mallerstang; Grisedale Bridge (W. B. Waterfall); Mardale (1882).

280. **Brachythecium rivulare** B. & S. In stream from Blea Tarn, Mardale (1869); Nan Bield (1882); Middleton Fell (1881); The Force, Levens; Benson Knot (Binstead, 1885); Grisedale (W. B. Waterfall, 1887).

281. **Brachythecium populeum** (Hedw.). Very abundant. Windermere (Clowes); Whitbarrow (Barnes, 1871); Rydal (1867); Natland (1888); Levens (1868); Hill Bell (1868); Barrow Field (1881); Staveley (1871).

282. **Brachythecium plumosum** (Sw.). Windermere (F. Clowes); Rydal (1867); Kentmere Plantation (1868); Staveley (1871); Naddle Forest (1871); on boulder by the stream, Barrow Field (1881); Barbondale (1885); Pooley Bridge (1886).

283. **Hyocomium flagellare** (Dicks.). Stock Ghyll (Miss Martineau's Guide, 1855); Rydal Falls (1867); Nan Bield (1869); Park Beck, Kentmere Plantation (Barnes and Stabler, 1869); Little Langdale (1875).

284. **Eurhynchium myosuroides** (L.). In the wood near Reston Hall, Staveley (T. Gough); Windermere (F. Clowes); Rydal (1867); Stock Ghyll (1867); Kentmere Plantation (1868); (Heversham Head (1869).

285. **Eurhynchium striatum** (Schreb.). Windermere (F. Clowes); Yew Barrow, Witherslack (Barnes, 1868); Kentmere Plantation (1868); Crosby Ghyll, Crosby Ravensworth (1869); Levens Park (1872); Heversham Head (1871); Kirkby Stephen; Mallerstang.

286. **Eurhynchium crassinervium** (Tayl.). Yew Barrow, Witherslack, and The Force, Levens (Barnes, 1868); Levens Bridge; Whitbarrow (Binstead and Stabler, 1886); Barrow Field (Rev. C. H. Binstead and Rev. C. H. Waddell, 1885); on trees, Low Levens (1888); Deep Ghyll, Mallerstang.

287. **Eurhynchium piliferum** (Schreb.). Hill Top, Kendal (T. Gough); Heversham Head (Barnes and Stabler, 1868); Whitbarrow; Kentmere Plantation (1868); High Foulshaw; N.E. slope of Rainsborrow, Kentmere (1868); Mallerstang. I have not seen a Westmorland fruiting specimen of this moss, although the species is fairly abundant.

288. **Eurhynchium prælongum** (Dill.). Windermere (F. Clowes, 1854); on rocks, Milnthorpe (Barnes, 1868); Stock Ghyll Force (1867); Kentmere Plantation (1867); Staveley; Levens Park; by river Lune near Ingmire Hall; Barrow Field (1872); Rydal Falls (1877); Naddle Forest (1871); Pooley Bridge; Nateby.

Our plant is *Eurhynchium Stokesii* of Bry. Brit.

289. **Eurhynchium Swartzii** (Turner). In fields near Bridge End, Levens (Barnes, 1868); Witherslack (1869); Whitbarrow (Binstead and Stabler); in cultivated fields near Lawrence House, Levens, c.fr. (1880); Kendal, hedge banks (C. H. Binstead, 1886).

290. **Eurhynchium hians** Hedw. On rocks near Rusmickle, Lyth (Barnes and Stabler, 1872). This agrees exactly with a specimen which I received from my late friend, Prof. S. O. Lindberg, under this name.

291. **Eurhynchium pumilum** (Wils.). Under large trees at the low end of Dallam Tower Park, Milnthorpe, c.fr. ! (Barnes and Stabler, 1872); under beech hedges in the garden, Levens Hall; on shaded rocks, Levens Park (1886); Deep Ghyll, Mallerstang (1888).

292. **Eurhynchium Teesdalii** (Sm.). By the river Kent, on the under side of overhanging rocks, Levens Force (Barnes, 1869); Sedgwick Gunpowder Works, by river Kent (1869); on stones by river Bela, Milnthorpe (Barnes and Stabler); Kentmere Plantation.

[**Rhyncostegium demissum** (Wils.) Near Keswick, Cumberland (Dr. Carrington and W. H. Pearson, 1884)].

293. **Rhyncostegium tenellum** (Dicks.). Brigsteer (Barnes and Stabler, 1868); on the garden wall and the bridge at Levens Hall (1871); Heversham Head, on rock (1873).

294. **Rhyncostegium depressum** (Bruch). Barrow Field (1868); on limestone clints in a coppice east of Rusmickle, Lyth, c.fr.! (Barnes, 1871); Levens Park (1869); Mallerstang, in Deep Ghyll (1888).

295. **Rhyncostegium confertum** (Dicks.). Windermere (F. Clowes); on rocks, Slack Head, Beetham (Barnes, 1867); plentiful on rocks in Heversham Head Wood (Barnes and Stabler); on a wall, Rydal Mount (1877); Bowness T. Hartley and Barnes); Haverbrack (1870); Stock Ghyll (1876); near Kendal (Binstead); Ambleside, on walls.

296. **Rhyncostegium murale** (Hedw.). Not uncommon on embedded stones and walls; fruits freely. Barrow Field (Barnes and Stabler, 1867); Heversham Head (1871); Levens Park (1869).

297. **Rhyncostegium rusciforme** (Weis.). Benson Knot (T. Gough); Witherslack Mill (Barnes, 1867); Windermere (F. Clowes); Grayrigg Forest (1876); Levens Park (1869); Grisedale (W. B. Waterfall, 1886); Broom Close, Kendal (C. H. Binstead); Glenridding (1886); in river Eden, Mallerstang (1888). There is a large form on Wildboar Fell which has the nerve not stout.

298. **Thamnium alopecurum** (L.). *Isothecium* Bry. Brit. On banks of river Kent, Natland (J. Just); Windermere (F. Clowes); Witherslack (Barnes, 1868); Levens Park (1869); Crosby Ghyll (1869); Rydal Falls (1877); Stock Ghyll (1867); Kentmere; Mardale.

299. **Plagiothecium pulchellum** (Hedw.). At the mouth of an old mine, Rainsborrow (J. A. Martindale, 1867); Swindale (Barnes, 1867); Black Beck (F. Clowes); Nan Bield (1868); Naddle Forest, in crevices of rocks (1871); by river Lune, Ingmire Hall; Red Screes (1881); Helvellyn (W. B. Waterfall, 1887).

300. **Plagiothecium nitidulum** (Wahl.). On decaying wood, Mardale; on moist banks at Barbondale, Oct. 17th, 1885.

301. **Plagiothecium denticulatum** (L.). Windermere (F. Clowes); Witherslack Moss (Barnes, 1867); Hill Bell and

Kentmere Plantation (1868); Ambleside (1867); Naddle Forest (1878); Barrow Field (1868); Deep Ghyll, Mallerstang.

VAR. **obtusifolium.** Summit of Helvellyn, 30th July, 1862 (Rev. Dr. Cookson, of Cambridge).

302. **Plagiothecium Borreri** (Spruce). Kentmere Plantation (1872); in a wood near Staveley Church (1872); Red Screes.

VAR. **tenue** Spruce. Harter Fell (1871); Mardale (1872).

303. **Plagiothecium sylvaticum** (L.). Windermere (F. Clowes); Witherslack (Barnes, 1867); Grayrigg Forest on bushes (Barnes and Stabler, 1868); Harter Fell (1877); Rydal (Barnes, 1868); Wildboar Fell; Patterdale (W. B. Waterfall, 1887).

304. **Plagiothecium Sullivantiæ** Schpr. 'Ad Kirkstone Pass, Westmorlandiæ plantam ♀ sterilem m. Junii 1876, invenit am G. Stabler,' *Musci Præteriti*, by Dr. R. Spruce, in 'Journal of Botany,' Feb. 1881. No. 218.

305. **Plagiothecium undulatum** (L.). Windermere (Clowes and J. Atkinson); Stock Ghyll, Ambleside (Barnes, 1867); Naddle Forest, Mardale (1869); Merke Side (1887); Place Fell (W. B. Waterfall, 1887); Wildboar Fell; Heversham Head.

306. **Amblystegium Sprucei** Br. On the top of Whitbarrow, where a stream flows into the rock (J. M. Barnes and Stabler, 1871); Maize Beck, Westmorland (R. Barnes).

307. **Amblystegium confervoides** (Brid.). On stones and rocks of limestone, Heversham Head Wood (Barnes, 1868); Barrow Field Wood (Barnes, 1868); Whitbarrow and Levens Park (Barnes and Stabler); Milnthorpe (1868); Crosby Ghyll, Crosby Ravensworth (1869); Cunswick Wood (Rev. C. H. Waddell, 1885). [Dent (1872)]. I believe Mr. J. M. Barnes was the second person to find this species in England. In June of 1866 it was discovered in Dove Dale, Derbyshire, by Dr. Frazer.

308. **Amblystegium serpens** (L.). Windermere (T. Gough and F. Clowes); Levens Park (1868); Heversham Head; Brigsteer Wood (1868); Whitbarrow; Pooley Bridge (1886); Mallerstang; Patterdale (W. B. Waterfall).

VAR. **salinum** Carr. *A. serpens* var. *depauperatum* Boulay. Banks of river Gilpin, Levens (1880), and near Arnside (1893).

309. **Amblystegium varium** (Hedw.) Lindb. *A. radicale* Sch. Synop. On stumps of willows in a boggy place near Milnthorpe Railway Station, now drained (Barnes and Stabler, 1870); Grasmere (Binstead, 1893).

310. **Amblystegium irriguum** (Wils.) Schp. Windermere (Clowes, 1856); Longsleddale (F. Clowes); on wet stones by river Bela, Milnthorpe (Barnes, 1867); Levens Park (Barnes and Stabler, 1872); Sedgwick (1869); Kentmere Plantation in Park Beck (1869); Spindle Wood, near Kendal (C. H. Binstead, 1885).

311. **Amblystegium fluviatile** (Swartz). Long Sleddale (Clowes, 1856); on stones in river Gowan, Staveley (July 1872); in the stream in the front of Rydal Hall (1887); How Green, Ulleswater (Rev. A. Ley, 1880); plentiful in Bee Hive Beck, Hutton, and in the river Mint, Kendal (Binstead, 1886).

312. **Amblystegium riparium** (L.). Barrow Field (Barnes, 1867); near Overthwaite, Milnthorpe (Barnes, 1872); Burneside, c.fr. (Barnes, 1869).

313. **Hypnum Sommerfeltii** Myrin. *Hyp. polymorphum* Hedw. and Bry. Brit. Barrow Field, c.fr., growing with *Amblystegium confervoides* (Barnes, 1868, and Stabler); Heversham Head, c.fr. (Barnes, 1868); Barbon Fell.

314. **Hypnum chrysophyllum** Brid. *Hyp. polymorphum* Bry. Eur. but not of Hedwig. On stones Sizergh Fell (Barnes, 1868); Barrow Field Wood and Brigsteer Wood (1868); Levens Park (1885).

315. **Hypnum stellatum** Schreb. Windermere (F. Clowes); Ulpha Moss, Foulshaw, c.fr. (Barnes, 1867); Hill Bell (1868); Naddle Forest (1871); Staveley, c.fr. (Barnes, 1871); Brown Ghyll, Langdale (1893); Keppel Cove (W. B. Waterfall, 1887).

316. **Hypnum protensum** (Brid.) Lindb. *H. stellatum* v. *protensum* Syn. Musc. Eur. Ed. ii. Heversham Head (Barnes, 1871); Barrow Field (Barnes and Stabler, 1868); Levens Park (1881); Barbondale (1885); Helsington Barrows (1888).

317. **Hypnum polygamum** Schpr. On the sandy marsh, Foulshaw, c.fr. (2nd May, 1868).

318. **Hypnum aduncum** Hedw.

VAR. **Kneiffii** Schpr. Barrow Field, in bog (Barnes and Stabler).

319. **Hypnum vernicosum** Lindb. Head of Kentmere (Binstead, 1885); boggy ground near Haweswater and Grasmere (Binstead, 1893).

320. **Hypnum Cossoni** Schpr. *Hypnum intermedium* Lindb. Benson Knot (Binstead, 1886).

321. **Hypnum Sendtneri** Schpr. Mardale, 3rd Nov., 1871.

322. **Hypnum exannulatum** Gümb. *H. aduncum* Dill. and L. In a bog, New Hutton (Binstead, 1886); summit of Wild Boar Fell in plenty (1888).

323. **Hypnum fluitans** L. Head of Longsleddale (Barnes, 1869); Barrow Field (1867); Kentmere (1869); Bow Fell (1875); Grisedale; bog near Milnthorpe; Foulshaw (1868); Cliburn Moss (1886); High Cup Nick; Wild Boar Fell; Helvellyn and Deepdale (W. B. Waterfall).

324. **Hypnum revolvens** Swartz. Helvellyn (F. Clowes); Bowness (J. Atkinson, 1867); Barbondale (1885); Patterdale (1886); Deep Ghyll on east slope of Wild Boar Fell (1888).

325. **Hypnum uncinatum** Hedw. By river Gowan, Ings, and on Helvellyn (T. Gough); near Helsington Church (John Nowell, Sep. 1867); Belle Isle, Windermere (Barnes, 1868); Staveley (1868); Kentmere Plantation (1869); Naddle Forest (1871); Heversham Head (a small form); Hayes Water (Slater and Stabler, 1878); Wild Boar Fell; Patterdale (W. B. Waterfall).

326. **Hypnum filicinum** L. Windermere, marshy places (Clowes and T. Gough); Docker Fell, Kendal (T. Gough, 1848); Levens Park (1867); High Cup Nick (1868); Hill Bell (1868); Sizergh Fell (Barnes, 1868); on banks of river Gilpin, Levens (1880); Rigmaden Park, on wet rocks (1880); Staveley; Whitbarrow; Wild Boar Fell; Grisedale Bridge (W. B. Waterfall).

327. **Hypnum commutatum** Hedw. Scarfoot Mills, Kendal (T. Gough); Dripping rocks, Levens Park (Barnes and Stabler, 1869); Whitbarrow (Barnes, 1868); Naddle Forest (1878); Mallerstang; Grisedale (W. B. Waterfall).

VAR. **condensatum.** Benson Knot (T. Gough).

328. **Hypnum rugosum** Ehrh. Mostly found on limestone, but not strictly so. Whitbarrow (F. Clowes, 1856); Arnside Knot (1885); on slate rock with *Blepharozia ciliaris*, Witherslack (1872); Brigsteer Wood; Beetham Fell (Barnes, 1867); Helm Crag, Grasmere (Binstead, 1893).

CREDULITY, CULINARY AND CURATIVE.

Herbal Simples | approved | for Modern uses of Cure. | By W. T. FERNIE, M.D. . . . Bristol: John Wright & Co., 1893. [2nd Edn., Revised and Amplified, 1897—Thick 8vo. Price 6s.]

SINCE somewhat outside our scope as naturalists, the better part, perhaps, would be to pass over this book in silence, and not by a single word retard Time in its certain revenge. For those who like the sort of reading it provides—gossipy folk-lore about pot-herbs and simples, telling the tale of hard-dying simplicity and superstition—it is a many-course dinner to be taken uncritically, though only by those who can swallow a great deal. To examine the ingredients severally would surely be to have one's taste spoilt for long time; and any relish felt in the examination cannot but be mingled with sorrow: those palates of the Past that could put up with so much of pitiful and strange must have approximated to the gutter-child's or the infant's of to-day, with whom, as we know, the first impulse is to put everything to their mouth, deleterious or dubious alike. As the reviewer in another place said, 'the green end of a goose-dropping'—once a nostrum for the 'falling sickness,' though only half vegetable, the other half *fowlly*-animal—seems to us in our enlightenment much more likely to give one a fit than cure it!

The book has attained to the dignity of a bulkier 2nd edition, and is in truth a not very discriminating compilation from the older herbals of all sorts of plant-lore. Good intention—a downward-leading pavement, teste a well-known saw—is evident enough; but the work cannot be held harmless because it is impossible, from the author's way of sandwiching the facts and fictions chronicled, to gather which he puts forth as practical and trustworthy and which as matters of history alone, not to be taken seriously. Much of it seems to us to be pseudo-scientific, inexact, and loosely expressed; and not one of the points that strike us as faulty in the first edition seem to be amended in the second.

On the first page, in both editions, the date of John Evelyn's 'Acetaria—a Discourse of Sallets,' wherein over fifty sorts are enumerated, is given as 1725, whereas it was first issued in 1699, and again in 1706, the famous author-gardener dying in the latter year.

Slipshodisms in phrase abound, and of course do not make for lucidity. On p. 222, of the Poor Man's Garlic, *Erysimum alliaria*, treated not under Cress-worts, but under Leek and Onion, we find it said that it is 'a somewhat coarse and most ordinary member of the onion tribe.' It is nothing of the sort; and the botanical sense of

the word Tribe (from *tri*, three, and *bus*, family), implying kindred in character, descent, structure, does not warrant its stretching to cover and include plants that are superficially similar in some odour, or taste, or use. Some snails are alliaceous, but they are not on that account either ordinary or extraordinary members of the Alliums.

Again (p. 360), what is a 'weak, sleepy sort of smell?' Mullein leaves are said to possess it, but science would assert, we think, that the adjectives were misplaced. The poet's license to be ambiguous, and maunder circumambiently as to his meaning, as where Macbeth says 'the heaven's breath smells wooingly,' does not hold in science, any more than a writ in another country from that in which taken out.

But a still looser use of words occurs under Sundew. That semi-carnivorous marsh plant, with stalked leaf-blades springing from a centre on the ground like the spokes of a wheel, bears, we are told, 'a cluster of hairy leaves in a stellate form at the top of a slender stem!' That misdescription 'bangs Banagher' in its ineptitude—the ribs of an umbrella in a shower would serve their purpose as well or ill as the indication of shape and arrangement above quoted does its subject.

As for diction, we note the use of some curious jaw-breaking words. Lectimingous, as applied to the children's Piss-a-bed of the Spring, and to the Daffodil, is a triumph in 'nice' expression. Inimicous, for enemy-to, quoted from Evelyn, is another strange face, though not so larmoyant, provocative of laughter unto tears, as the first-named pedanticism!

The chapter on Saffron (meadow and cultivated) mixes up terribly the non-related Colchicum Lily and the Crocus of the Irid order. An allied mess is made of the Garden Rue, Gerarde being quoted as a trustworthy 'doctor' for the statement that the 'Wild Rue is found on the hills of Lancashire and Yorkshire, being more vehement in smell and in operation than the Garden Rue.' Gerarde made many gross as well as absurd mistakes: every botanist will bear us out in saying that the above 'takes the cake' apocryphally.

In another place, under Sea Plants, we are told that 'at the London Reform Club, Laver' (a purple sea-weed, *Porphyra*) 'is provided every day in a silver saucepan at dinner, garnished with lemons, to flank the roast leg of mutton.' This bespeaks conservatism, not reform, but, if true and still in vogue, is a very curious and significant bit of information.

Space will not allow us to spread out our dissection further, and we are sorry to have to write in such a strain at all. Full of information, alas! of the sort that is of little use to anybody, the

scientific and botanic character of the work is simply beneath contempt. 'A potato pie is believed to invigorate the sexual functions' (pp. 281 and 446) is really not an unfair example of the undigested trivialities to which, by repetition without dissent, our author gives his imprimatur. In brief, the book's facts offer a reflexion of the distorted mirror of the Mediæval, but with far too little reflection thrown on them by the greater search-light of latter-day knowledge. If the author's present day reading has led him to that knowledge he seems to us to have culpably withheld it whilst quoting such long-exploded taradiddles as he does—excerpts from the doctrine of signatures, and that variant, the 'law' of 'similars' which leads to fixed-practice dogma—when there is no such thing as fixed-action and uniform-practice in the world at all.—F. A. Lees.

NOTE—BOTANY.

New Lincolnshire Plant Records.—

Carduus crispus × *nutans* (*Newbouldi* H. C. Wats.). Martin, Div. 10, Rev. F. S. Alston, 8, 1897. In Cty. Herb.

***Salix undulata* Ehrh.** = *S. lanceolata* Sm., i.e., *S. triandra* × *alba* of the Rev. E. F. Linton's arrangement. He kindly named the specimen for me. Great Cotes, Div. 4, J. Cordeaux, 8, 1897. Cty. Herb.

Leucojum æstivum L., Calcethorpe Wood, Div. 8. Miss Lewin, 5, 1897. In her collection and others. No doubt planted some years ago.

Isatis tinctoria L. Mr. J. Cordeaux tells me that two plants came up in the village of Great Cotes, Div. 4, some years ago, after the moving of some earth in making a new footpath. I have always wondered why we have no records for this species as an escape from cultivation in Lincolnshire, where it has been grown for so many years, and is still grown.

Euphorbia portlandica L. 'Given me (F. A. Lees) in the train (an excursion returning to Leeds, which I boarded at Doncaster) by a lady who had a bunch of it and *Eryngium maritimum* L., etc. She had been to Skegness by trip. She said she had gathered them all on the sands approaching Gibraltar Point. The specimen was quite fresh when given to me. The date was 3.8.1897;' F. A. Lees. Specimen now in Cty. Herb.—E. A. Woodruffe-Peacock, Cadney, Brigg, August 13th, 1897.

NOTES AND NEWS.

'Studies in the Art | of | Rat-Catching. | By H. C. Barkley, | author of | . . . | Popular Editon. | London: | John Murray, Albemarle Street. | 1896.' This is a somewhat slight book of 185 pages in cloth, written more to interest school-boys than to impart instruction in the subject or information on the natural history of the animals caught; but its anecdotal character will doubtless do much to give—as the author puts it—a taste for a 'wholesome country pastime.' The price is half-a-crown.

'Studies | of | Lakeland Birds | By | Mary L. Armitt | Ambleside: George Middleton | 1897' is a modest unpretending little book, in paper covers, extending to 117 pages, and issued at One Shilling net. The cover adds 'First Series' to the title, and we hope the authoress will feel sufficiently encouraged by the sale of this to add a second series thereto. Readers of this journal know the grace of the authoress's style of diction, and will need no further commendation from us. The birds treated of, each in a separate chapter, are the Lesser Redpole, the Grey Wagtail, the Tree Pipit, the Redstart, the Greenfinch, the Willow-Warbler, the Sedge Warbler, the Coal Titmouse, the Long-tailed Titmouse, the Dipper, the Spotted Flycatcher, the Wheatear, the Wood-Warbler, the Wren, and the Meadow-Pipit, each study being from the life.

THE STUDY OF ROCK-SECTIONS.

Petrology for Students | by | ALFRED HARKER, M.A., F.G.S., | Fellow of St. John's College, and | Demonstrator in Geology (Petrology) in | the University of Cambridge. | Cambridge : | at the University Press. | 1895.

MR. HARKER'S contribution to the Cambridge Natural Science Manuals is a compact book of over three hundred pages, full of interesting matter, and illustrated by seventy-five drawings of rock-sections. With this book at his side the English petrologist (for this book is written for British students, and the examples are drawn from his own country) will find the study of rock-sections as charming as microscopical biology. The author insists that the identification of the component minerals is only part of the examination of a rock-section. Its history should be read by the study of the mutual relations of its mineral constituents, their structural peculiarities, the order of consolidation, intergrowths, interpositions, decomposition-products, pseudomorphs, fluxion-phenomena, vesicles, strains, etc. As we have spent several years in Cornwall, and have visited many times the battle ground of British petrologists at the Lizard, and have had the successful teaching of mineralogical students in this foremost metal-mining county, where opportunities of studying mineralogical phenomena were ever being afforded us in the field, the mine, through the microscope, and in the lecture room, we feel, from our knowledge of the need of such a book, justified in recommending this work. The arrangement of the matter is good, with an introduction of twenty-one pages, far too short, so pleasantly, perhaps a little too concisely for the student, is it written. We feel, however, that Professor Harker would have been well advised had he treated of several optical subjects in his introduction which he has omitted because he felt that they had been well done, and more fully, elsewhere than he had space to devote to them.

On a book like this, replete with rock lore, a text-book and a dictionary of petrology, one cannot in a brief review do one's duty to it. The sections of this work are six in number, and their headings and subjects may suggest the width and scope of the work: Introduction, dealing with the optical properties of minerals; Plutonic Rocks—granites, gabbros, peridotites, etc.; Intrusive Rocks—diabases, lamprophyres, etc.; Volcanic Rocks—rhyolites, trachytes, basalts, etc.; Sedimentary Rocks—argillaceous, calcareous, etc.; and Thermal and Dynamic Metamorphism.

HENRY CROWTHER, F.R.M.S.

The Museum, Leeds, Aug. 24th, 1897.

EGGS OF STONE-CURLEW.

OXLEY GRABHAM, M.A., M.B.O.U.

The above photograph is of special interest to Yorkshire ornithologists, representing as it does the eggs in situ, for of nest there is practically none, a mere scratching amongst the stones sufficing at the most, of the Stone-Curlew, Thickknee, or Norfolk Plover (*Œdicnemus scolopax* Gmel.). These eggs were laid this spring by one of the two or three last remaining pairs of the birds which still breed in Yorkshire. For very obvious reasons I do not give the locality nor the name of the gentleman on whose property they breed, and who very courteously showed them to me, and gave me every facility for observing them. Suffice it to say that those to whom the district is known are all most interested in keeping it secret, and the birds are protected as far as it is possible to do so. It is a thousand pities that at this time of day one has only to mention the secluded corners where our rarer birds still breed, in diminishing numbers, to ensure their being very speedily decimated by the greed of the collector. The Stone-Curlew still breeds pretty plentifully in some of our English counties, and I believe the dealer's ordinary price for an egg of the same does not exceed the sum of one shilling; but because there are only one or two pairs left in a

certain district they immediately acquire, unfortunately for themselves, a fictitious value, and only this year, I am sorry to say, no less a sum than £5 was offered for a clutch of the eggs of these very birds about which I am writing, and which I rejoice to say was very properly refused. When will collectors cease putting such a premium on the destruction and obliteration of some of our rarer and most interesting birds, for when once driven away from a district they can very seldom be brought back again. It is all very well to say that if one clutch of eggs is taken the birds will lay again, but if everyone acted on this principle a veto would be put upon the propagation of the species. The photograph was taken by Mr. W. J. Clarke, of Huntriss Row, Scarborough, with a Loman's Reflex, ¼-plate, and considering the disadvantages of time and surroundings —four o'clock in the morning, and in a dense fog—it is excellent. As will be seen from the photograph, one of the eggs is much rounder and more heavily marked than the other—it was a beautiful specimen, with scrollings on it like one sees on some specimens of the eggs of the Oystercatcher. The gentleman on whose property the birds breed tells me that this difference usually exists, and that he has never known there to be more than three pairs of the birds. One day when I was with him this spring I saw two pairs on the wing together close to me. The birds generally arrive early in May, leave in August, and never lay more than two eggs to each pair; the eggs are as difficult to find as those of any bird with which I am acquainted, for the birds themselves are most cunning and wary, and the eggs assimilate most closely in colour to the ground and stones amongst which they are laid. All the birds that I have put up flew off uttering their whistling note. Last year one pair of the birds, for some reason or other, deserted their eggs when they had been incubated for only half their time, and this year I much regret to state that, owing to a misunderstanding, one clutch of the eggs was taken. However, I have reason to hope that in both instances the birds laid again and safely hatched their young.

NOTES AND NEWS.

We have received from Messrs. Macmillan & Co. a copy of a shilling book belonging to Dobbie's series of Horticultural Handbooks, entitled 'The Dahlia | its History and Cultivation | By | Richard Dean, F.R.H.S. Robert Fife, F.R.H.S. | John Ballantyne Stephen Jones | William Cuthbertson | with illustrations of the different types and | a very complete List of the Varieties | in Cultivation in 1896 | London | Macmillan and Co., Limited | . . | . . | 1897 . . .' The book is of handy size, well got up, and runs to 80 pages with about nine illustrations, but is rather outside what may be regarded as our sphere of action.

POLYZOA AND HYDROZOA AT FILEY.

S. L. PETTY,
Ulverston.

For a dweller on the outskirts of the Lake District to go to Filey and find rain there was a strong inducement to grumble; and to the weather I hope the paucity of my list will be accounted. The wet being conducive to rheumatism, I had to make the best of the few opportunities which offered for the collection of material, and not to be too particular about its condition if at all usable. As the Polyzoa sometimes harboured zoophytes, or vice versâ, I give a list of what I saw; but here, as in the Polyzoa, the species are only common. Mr. Hincks often mentions the Brigg as a good collecting ground, and, under more favourable circumstances. so, too, I might have found it. My collecting place was under the cliffs on the other side (the new town side), where the tide deposited a mass of rubbish of all sorts. One fine piece of *Flustra foliacea* gave me many species otherwise seen either alone or on wrack, and in one case not previously noticed by me on anything. Mr. Hincks' books on these subjects have been seen, and the specimens compared with his figures in all cases. Mr. Vine's paper in this journal, January 1892, is the only one I am aware of on Yorkshire Polyzoa, but I have seen the notes about Spurn, Nat., 1884, p. 93. When a species is called not common, I mean that it was not so to me, nothing more. H.M.P. = Hincks' Marine Polyzoa, 1880. H.H.Z. = Hincks' Hydroid Zoophytes, 1868. The references are to vol. i., text, in each case.

POLYZOA.

Eucratea chelata L. On *Laminaria* and *Flustra foliacea* in fair quantity. *E. repens* sparingly on *Flustra* at the base of specimen. H.M.P. i., 16. 'Filey, under stones.'

Gemellaria loricata L. Frequent, both alone amongst débris and on *Laminaria*. The largest piece I saw was about three inches long, but it had been broken. H.M.P., i., 19. 'Filey.'

Scrupocellaria scruposa L. On *Flustra*; a few bits only. H.M.P., i., 46. 'Generally distributed round our coasts.'

Scrupocellaria reptans L. By no means plentiful so far as my experience went. The best specimens were obtained on *Flustra*. H.M.P., i., 53. 'Universally distributed.'

Bicellaria ciliata L. Once only on *Bugula purpurotincta*, a nice bit, but not much of it. H.M.P., i., 69. 'Filey.'

Bugula flabellata J. V. Thomp. On *Flustra*, and alone in quantity. Some of the specimens dyed quite black by washing about in coal dust and ash on edge of tide mark. H.M.P., 80. 'Filey.'

Sept. 1897.

Bugula purpurotincta Norm. On *Flustra*, but not so abundant as previous species. H.M.P., i., 90. 'Filey.'

Flustra foliacea L. and **F. securifrons** Pallas. Common.

Membranipora pilosa L. Common on *Laminaria*, *Flustra*, and on Zoophytes, especially *Hydrallmania falcata*.

Membranipora membranacea L. Common on *Laminaria*. H.M.P. for both species. 'Generally distributed.'

Crisia cornuta L. Some fair specimens on *Sertularia abietina*. H.M.P., i., 419. 'Filey.'

Crisia eburna L. On *Flustra* especially, and the var. *aculeata* Hassal. H.M.P., 421. 'Generally distributed.'

Crisia denticulata Lam. On breaking up a piece of *F. foliacea* after reaching home, one nice piece of this fell off. H.M.P., i., 423. 'Very generally distributed.'

Diastropora obelia Johnst. On *Laminaria*; but, so far as I found, not common. H.M.P., 463. 'Generally distributed.'

HYDROZOA.

Obelia geniculata L. Common on *Sertularia*, *Laminaria*, and *Flustra*. H.H.Z., i., 151. 'Common and generally distributed.'

Diaphasia attenuata Hincks. On *Flustra* and *Sertularia abietina*. H.H.Z., i., 249. 'Filey.'

Sertularia pumila L. On *Flustra*, not uncommon; on *Hydrallmania*, common. H.H.Z., 261. 'Generally distributed.'

Sertularia operculata L. On *Flustra* I found mine. H.H.Z., 264. 'Generally distributed.'

Sertularia abietina L. In quantity amongst tidal refuse. H.H.Z., 267. 'Very common and generally distributed.'

Sertularia argentea E. & S. Seemingly not quite so common as the previous species. H.H.Z., 269. 'Generally distributed.'

Hydrallmania falcata L. In quantity amongst the rubbish; usually the home of many other growths. H.H.Z., 274. 'Universally distributed.'

Thuiaria thuja L. I have one poorish specimen from Filey. H.H.Z., 277. 'A prevalent northern form.'

Antennularia antennina L. A somewhat damaged piece. H.H.Z., 280. 'Generally distributed.'

Plumularia. A bit of some sort of *Plumularia* is amongst my broken pieces, probably *P. pinnata* L.

I have mounted pieces of most of all these for reference. Ferguson's 'Nat. Hist. of Redcar' I have not been able to see; the booksellers tell me it has long been out of print, and is now very bad to meet with.

NOTES ON THE GLACIAL DEPOSITS OF CLEETHORPES AND DISTRICT.

JOHN H. COOKE, F.G.S.

THERE are but few natural rock exposures in the Cleethorpes district, as the surface consists almost wholly of glacial clays, sands, and gravels. The most prominent topographical feature is the 'cliff,' an elevation which extends from the railway station for a distance of about half a mile to the south-east. It is morainic in character, and its deposits, like those of the district surrounding it, are composed entirely of beds of the newer glacial series.

Until recent years the Cleethorpes cliff was of considerable interest from a geological point of view, as it offered along its foreshore the only natural exposure that occurs throughout the whole length of the Lincolnshire coast-line. Unfortunately, however, it now affords the geologist but few opportunities for examination, as twenty years ago it was banked by a sea-wall, and its slopes converted into a pleasure garden. Previous to the construction of the sea-wall the foreshore at this point suffered considerably from the tidal scour of the currents and the oblique sea-wash of storm-breakers; and even now, notwithstanding the numerous groins that have been erected to protect the front, a marked recession of the shore-line annually takes place to the S.E. and the N.W. of the town.

The superficial deposits of the district admit of a two-fold classification :—

I. Deposits of the Newer Glacial Series :

(*a*) Purple boulder clay.

(*b*) Hessle boulder clay.

II. Sands, gravels, peat, and shell marls of post glacial origin.

The first of these may be again sub-divided into two classes, viz. :

(*a*) The undisturbed clays.

(*b*) The same clays that have been modified by a re-assortment and a re-arrangement of their constituents.

The numerous building operations around the town afford facilities for studying the structure and composition of the upper beds of the series, while the brick pits to the westward of the railway station exhibit some extensive and clean-cut sections of the lower strata. The brick-making industry has led to the exploiting of three large pits, in each of which the sections in the Hessle and the Purple boulder clays extend to a considerable distance below high water mark.

The following are the details of a representative fall in each of the pits that were noted on the occasion of a series of visits paid by me to the sections in September, October, and February last :—

Pit I. (nearest the station):

(*a*) Soil cap. 1 foot.

(*b*) Sand with shells (*Cardium*, *Ostrea*, *Buccinum*), remaniè of an old sand dune. 2 feet.

(*c*) Yellow loamy marl, containing quantities of *Cyclas*, *Pisidium*, *Limnea*, and *Valvata*. 1 foot.

(*d*) Black, arenaceous peat with rootlets.

(*e*) Stratified yellow clay, same as (*c*). 2 feet.

(*f*) Shaly blue clay. 1 foot 6 in.

(*g*) Rootlet bed, with large tree trunks. 2 feet.

(*h*) Purple boulder clay. 30 feet +.

The Hessle clay seems here to be absent, a result probably of local denudation.

The greater part of the rock débris found in the Purple boulder clay consists of chalky rubble in a partially decomposed condition; the remainder of small scratched, rounded, and polished boulders of sandstone, oolitic limestone, carboniferous limestone, basalt, red flint, mica schist, and granite.

At the time of my visit there was a heap of 400 boulders of varying sizes in the centre of the pit bottom. These I sorted, and the following table gives the percentage of the kinds of rocks observed:—

Eruptive rocks	...	...	...	...	40 per cent.
Gneiss, granite, etc.	...	...	...	...	5 ,,
Limestones (oolitic, carboniferous)	...			...	30 ,,
Flint	...	...	...	...	10 ,,
Sandstones, grits, and indurated shales	...				15 ,,

Pits II. and III. are situated about 200 yards to the north-west of Pit I., and being contiguous the one to the other the sequence of the beds in each is practically identical, save that the interesting shell marls (div. *c*) of Pit I. are here absent.

The following details are representative of the main characters of the sections that are exposed in these pits:—

(*a*) Coarse de-angulated yellow sand. 1 foot 6 in.

(*b*) Yellow clay. 1 in.

(*c*) Coarse yellow sand (remaniè of an old sand dune). 2 feet.

(*d*) Peat bed, with much clay and many trunks. 1 foot 6 in.

(*e*) Mottled yellow clay, which graduates into

(*f*) Typical purple boulder clay. 36 feet +.

The boulder clays in the three pits are very uniform and homogeneous in character, and the materials that they contain—consisting of rounded, polished, and striated boulders, intermixed with occasional subangular and unsymmetrical rock fragments—are substantially identical. The two clays at the bottom of the section

represent the Hessle and the Purple clays respectively, and one of the most conspicuous features that serves to differentiate the one from the other is the extremely decomposed state in which the chalk rubble is always found in the upper of the two. This upper (Hessle) clay is also invariably of a bright yellow colour; but the lower is always blue, with a tendency in places to a steel-grey. This contrast is probably due to the fact that as the Hessle clay is the water bearing stratum at this point, that therefore the change in colour has been induced by the more active oxidation set up by the water.

The enormous quantities of rock fragments that occur in both is a prominent feature of the beds, but as a rule the chalk fragments are more numerous and in a better state of preservation in the lower than in the upper. Derivative fossils are both abundant and various. Ammonites, Gryphea, Belemnites, Pectens, Galerites, and ferruginous and phosphatic nodules, all more or less rolled and broken, are among those most frequently found. The chalk fossils do not appear to be so plentiful, a fact that is probably due to their more decomposable nature, though echinoderms, worn beyond recognition, are occasionally met with. The arenaceous peaty soil which occurs in the upper portion of each of the pits is of a dull, jet black colour. It is massive and homogeneous when first cut, but it weathers on exposure and becomes a somewhat friable, brownish earth.

These peat beds contain quantities of trunks and branches of trees and an abundance of moss and diatoms. These trees are always found lying on their sides in the bed, and this fact, together with the occurrence of mosses, diatoms, and the shelly marls with their freshwater molluscs would seem to indicate the former existence in this locality of a number of small meres. Some idea of the extent of these beds may be obtained on the foreshore to the eastward of the golf-links when the scour of the tide has laid bare a considerable area.

For the botanist the pit sections afford the better material for study as, owing to the maceration and rough usage to which the shore-beds are subjected at every tide, their principal characters are so obliterated as to render most of the specimens indeterminable.

The total thickness of the boulder clays exposed in these pits at present averages about 30 feet, and since the total thickness of the boulder clays in the district, as shown by the borings that were made when the pier was being built, is 90 feet, and of this 40 represents the height of the Cleethorpes 'cliff' above OD, it therefore follows that the excavations will have to be carried down another 20 feet further before the surface of the upper cretaceous beds will be reached.

Sept. 1897.

In Pit I. this estimate is probably excessive, for recently a fresh-water spring has burst forth from the centre of the bottom of the pit, which from the great hardness of its waters proclaims its origin and demonstrates that the chalk is not far off. I made several attempts to obtain details of the 'cliff' beds, but the sea-wall, the gardens, and buildings rendered my efforts abortive. Fortunately, however, Mr. Penning has preserved for us the results of his observations, which are now rendered doubly interesting, both for the information they afford as to the constitution of this morainal mound as well as for the opportunity they offer for the comparison with the details of the beds in the adjoining areas. The 'cliff' at the time of Mr. Penning's visit exhibited in section the following beds:—

(*a*) Sandy wash. 3 to 4 feet.
(*b*) Yellow sand with lines of carbonaceous matter. 2 to 3 feet.
(*c*) Brown stratified loam. 3 feet.
(*d*) Bluish loamy clay. 1 foot.
(*e*) Grey marl, full of shell and plant remains. 2 feet.
(*f*) Sand in places. 1 foot.
(*g*) Boulder clay.

From this it will be seen that the newer glacial beds here and in the pits to the north-west are capped by a series of post-glacial deposits that closely agree in their general facies.

Similar deposits are exposed in a field which is situate about half-a-mile E.S.E. between Cleethorpes and Humberstone. Here there are two disused pits in which an attempt has been made to reach the boulder clays. The thickness of the post-glacial deposits seems, however, to have discouraged the promoters, and the undertaking is now abandoned.

From Cleethorpes the line where the boulder clays pass beneath the post-glacial beds of the Marshland trends south; and near the village of Old Clee the Hessle and Purple clays occur as the surface deposits, and exhibit many interesting features. In a field about a furlong from the schoolhouse they are heaped up into mound-like masses that much resemble the neolithic tumuli that are so common in various parts of the county, but, as far as I could ascertain from observation and inquiry, the grounds for regarding them as being the work of man are very doubtful. None of them seem to have been opened, but from an examination of their exterior features they seem to have a distinctly morainic rather than an artificial character.

The ditching that has been carried out in the immediate neighbourhood has exposed sections of reddish-brown clays, weathering yellow. These clays are comparatively free from rock fragments, but otherwise they are similar to the Hessle clays along the Cleethorpes foreshore.

The building operations around New Clee offer many opportunities for studying the local peculiarities of structure, and the post-glacial modifications and changes that have taken place in these deposits.

The widening of the Albion Road between New Clee and Cleethorpes that was done last autumn exposed an interesting section in clays of Hessle age that had been modified and re-assorted by the action of atmospheric agencies. The deposits consist of sand and marl, and of blue and yellow clays, and with them are mixed a considerable proportion of chalky débris, more or less decomposed, and occasional boulders of quartzite (sandstone), flint, basalt, and gneiss.

Between Humberstone and Great Coates are numerous ditch sections that show the structure and the relations of the boulder clays and the estuarine warps with which the district is enveloped.

A pit between Great Coates and Healing has been excavated in an inlier of the Purple clays. This pit is of exceeding interest as it shows in section a layer of Purple boulder clay of about four feet in thickness overlying a series of thin beds of gravel and sand with intercalations of thin seams of carbonaceous matter.

The predominant feature of the clay at this point is the great quantity of chalk that it contains; but besides these are many fragments of flint more or less changed in colour, owing to the solution of some portion of their contained chalcedonic silica, and of oolitic limestones, micaceous sandstones, mica schist, and red granite. The gravels with the intercalated seams of carbonaceous matter that underlie the clays exhibit very marked evidences of false-bedding and they contain considerable quantities of entire and fragmentary shells having an estuarine facies. In addition to the shells that have already been obtained from these gravels by the geological survey I obtained several specimens of *Mytilus edulis*.

I trust that the preceding notes, when read in conjunction with others bearing on the glacial geology of North Lincolnshire, will not be without some value in assisting in generalisations as to the former physical conditions that endured when the Clee and Cleethorpes moraines and boulder clays were formed. The southern shores of the Humber teem with interesting problems bearing on this phase of the county's geological history. The geologists of the Grimsby Naturalists' Society have therefore no lack of opportunities. May I suggest to them that they should be taken advantage of?

LINCOLN, *April*, 1897.

NOTES AND NEWS.

Among the recent elections to the Fellowship of the Linnean Society we note the names of Mr. Willoughby Gardner, of Liverpool, well known as an entomologist and author of the most recent List of the Aculeate Hymenoptera of Lancashire and Cheshire, and Mr. Arnold T. Watson, of Sheffield, whose excellent studies on the life history of various marine animals will at once recall themselves to the memory of those interested.

The 'Proceedings of the Warrington Literary and Philosophical Society' for the Session 1896-97 consists of six papers separately paged, none of which have any bearing upon matters of local interest. They are by the President, Mr. J. Rymer Young, F.C.S., Mr. E. J. Wall, Mr. J. W. C. Haldane, C.E., Mr. J. W. Graham, M.A., Mr. James Johnson, J.P., and Mr. Sampson, who treat respectively of Alchymy and Chymistry, the X Rays, Steam Navigation, John Ruskin, Charles Kingsley, and the Gypsies.

The activity of Manchester scientists is well evidenced in the Report of the keeper (Mr. W. E. Hoyle) of the Manchester Museum for 1896-7, which has lately reached us. This activity is far-reaching and shows itself in innumerable ways in the report. The report first alludes to the loss of the late Thomas Hick, and the subsequent acquisition of his sections of coal-plants, then to the withdrawal of the Botanical Professor's staff from museum work, the retirement of Mr. F. G. Pearcy and promotion of Mr. R. Standen to his post as Assistant Keeper, and the appointment of Mr. Harold Murray as Assistant in the Botanical Department. The work of the various officers is reviewed in detail, and the principal acquisitions to the collections noticed.

With the Report we have also received the first four of a new series of publications, which is entitled 'Notes from the Manchester Museum,' and is to consist of papers relating to the museum reprinted from various serial publications. The four now issued are:—No. 1, Suggestions for a proposed Natural History Museum in Manchester, by the late T. H. Huxley; No. 2, On Rachiopteris cylindrica, Will., by the late Thomas Hick; No. 3, On the Ampullæ in some Specimens of Millepora in the Manchester Museum, by Sydney J. Hickson; and No. 4, Descriptions of New Species of Brachiopoda and Mollusca from the Millstone Grit and Lower Coal Measures of Lancashire, by Herbert Bolton. All these are dated with the exact date of issue. It is devoutly to be wished that the example set by Manchester could be more generally followed in our northern district.

Local guide books as often as not are neither a boon nor a blessing to those who read them for information, and between the book written by a specialist and that of one who used to be called 'a hack,' there is a gulf which is only occasionally bridged. In the case of Mr. W. G. Collingwood's 'The Book of Coniston' (T. Wilson, Kendal, 1897), the difficulty is to compress what we have to say, for to call it 'admirable' is but bare recognition. From a historical point it is perhaps as perfect as it could be. It gives plain directions what to see and how to see it, and contains all the local information necessary to a visitor. The only call it has for notice here is that Mr. Collingwood points out that some of the place-names in the district are derived from the Norse, and are really animal place-names, e.g., Harter Fell (*hjartar-fell*, stag's hill), Walna Scar (*valna-skör*, hawk's scaur), Ulpha (*ulf-á*, wolf river), Grizebeck (*grisa-bekkr*, wild boars' stream). If our first records have to be taken back like this we shall want a scholar to translate for us, for unless some poetic-minded ancient has been at work we here have proof of the existence in Lake Land of these animals and birds, Deer, Wild Boar, Wolf, and Hawk ages ago. The book is of convenient size for the pocket (would it not be improved if the fore corners were rounded?), well printed, has a good map, and costs sixpence. The proceeds of the sale, we understand Mr. Collingwood to say, are a portion of his contribution to the Coniston Institute, so no admirer of Mr. Ruskin should omit to purchase, whether a visitor or not.—S. L. P.

LINCOLNSHIRE BOULDERS.

JOHN H. COOKE, F.G.S.,
Thorndale, Lincoln.

SECOND PAPER.

(*For previous paper, see 'Naturalist,' April* 1897, *pp.* 103-105).

ABBREVIATIONS.—A. = angular; S.A. = sub-angular; R. = rounded.

Legbourne.

61. Basalt (S.A.), 24 in. × 16 in. × 13 in.
62. Basalt (A.), 19 in. × 18 in. × 10 in.

Both of these lie at the corner, near the blacksmith's shop.

Utterby.

63. Basalt, 21 in. × 12 in. × ? Rounded and partly buried.
64. Micaceous Schist (S.A.), 24 in. × 18 in. × 12 in.
65. Basalt (S.A.), 12 in. × 18 in. × 12 in.
66. Basalt (S.A.), 21 in. × 18 in. × 12 in.

These lie at the corner of Holywell Lane on the Louth Road.

The following two are at the gate of the village green.

67. ? (S.A.), 27 in. × 27 in. × 18 in.
68. Basalt (S.A.), 18 in. × 18 in. × 15 in.

Fotherby.

69. Phtanite (A.), 14 in. × 21 in. × 9 in.
70. Basalt, 12 in. × 12 in. × 9 in. Serves as a stile step.
71. Basalt (R.), 14 in. × 14 in. × 12 in. In the post-office garden.
72. Basalt (R.), 24 in. × 18 in. × ? Opposite the Bede Houses.
73. Pink Sandstone, 12 in. × 12 in. × 9 in. Post-office garden.

North Thoresby.

This village abounds with glacial relics. I have measured and recorded 27 blocks of basalt averaging 18 in. × 15 in. × 9 in. The street corners, Campbell's Yard, the Police Station, the blacksmith's shop, and the churchyard all yield an abundance. I have upwards of 50 records for this village, of which the principal are:—

74. Basalt (S.A.), 24 in. × 20 in. × 12 in. Campbell's Yard.
75. „ „ 24 in. × 15 in. × ? Police Station.
76. „ (A.), 18 in. × 12 in. × ? Buried at the corner of the blacksmith's shop.
77. Basalt (S.A.), 36 in. × 30 in. × ? Buried at the corner of the blacksmith's shop.
78. Basalt (A.), 24 in. × 18 in. × ? Roberts' shop.
79. „ „ 32 in. × 24 in. × 12 in. Roberts' shop.
80. „ „ 18 in. × 15 in. × ? Roberts' corner.
81. „ „ 36 in. × 24 in. × 20 in. Plumtree's corner.
82. „ „ 21 in. × 18 in. × 12 in. This was dug out of the foundations of the church, together with a quantity of other basaltic boulders.

83. Basalt (A.), 39 in. × 30 in. × 30 in. This is an historic stone. It is situated in a hollow in the centre of a field to the north-east of the church. It is evidently in situ.
84. Sandstone (S.A.), 24 in. × 21 in. × 18 in. Tyson's corner.
85. Quartzite (S.A.), 16 in. × 12 in. × 8 in. Campbell's yard.
86. Flint (A.), 21 in. × 18 in. × 12 in. Campbell's yard.
87. Sandstone (R.), 18 in. × 12 in. × 12 in. Roberts' shop corner.
88. Augite granite, 10 in. × 10 in. × 9 in. Potter's corner.
89. Porphyritic granite, 15 in. × 12 in. × 9 in. Potter's corner.

In the paving of the adjacent yard there are numerous small rounded boulders of red granite.

Wold Newton.

90. Basalt (A.), 18 in. × 16 in. × 12 in. At the cross roads.
91. Basalt (A.), 24 in. × 20 in. × 14 in. At the cross roads.
92. Dolerite (R.), 30 in. × 30 in. × 21 in. Corner of Sharpley's farm.
93. Basalt (A.), 30 in. × 24 in. × ? Sharpley's farm.
94. Basalt (A.), 18 in. × 15 in. × ? Sharpley's farm.
95. Basalt (A.), 29 in. × 18 in. × ? Sharpley's farm.

These were partly buried, and their thickness was therefore indeterminable. In all cases, however, it exceeded 12 in.

96. Basalt, 12 in. × 12 in. × 12 in. At the pond near cross road.

South Elkington.

97. At a distance of 40 yards beyond the cross roads on the Louth highway there are many basaltic boulders, seven of which are over a cubic foot.

Haxey.

98. Secondary limestone (S.A.), 24 in. × 12 in. × 12 in. Blacksmith's shop.
99. Basalt (A.), 24 in. × 14 in. × 11 in. Blacksmith's shop.
100. Basalt (A.), 17 in. × 12 in. × 12 in. Blacksmith's shop.

Swallow.

101. Dolerite, 34 in. × 30 in. × 17 in. Post-office corner.

Luddington.

102. Shap-Granite. The occurrence of Shap-Granite in Lincolnshire was the subject of a paper by Mr. T. Sheppard in a recent issue of the 'Naturalist.' In view of the interest in the subject which this paper has induced I would direct the attention of Lincolnshire glacialists to yet another fine boulder which I have come across at Luddington, in the centre of the Trent Valley. It is well rounded, and measures 24 in. × 18 in. × 12 in. It serves as a guard to the corner of the gateway of Smith's Farm.

BIBLIOGRAPHY:

Papers and Records published with respect to the Natural History and Physical Features of the North of England.

PHANEROGAMIC BOTANY, 1891.

THE present instalment has been compiled and arranged by WM. DENISON ROEBUCK, F.L.S.

Previous instalments of the botanical bibliography have been published as follows:—

For	1884,	in 'Naturalist,'	Sept. 1885, pp. 331-336.
,,	1885,	,,	June 1886, pp. 174-179.
,,	1886,	,,	Dec. 1890, pp. 359-374.
,,	1887,	,,	April-May 1891, pp. 125-133.
,,	1888,	,,	June 1891, pp. 189-199.
,,	1889,	,,	March 1894, pp. 93-112.
,,	1890,	,,	Feb.-Mch. 1896, pp. 61-76.

The counties and vice-counties of which cognizance is taken are the following, as named and numbered in the Watsonian scheme:—

53, Lincoln S.; 54, Lincoln N.; 56, Notts; 57, Derby; 58, Cheshire; 59, Lancashire S.; 60, Lancashire W.; 61, York S.E.; 62, York N.E.; 63, York S.W.; 64, York Mid W.; 65, York N.W.; 66, Durham; 67, Northumberland S.; 68, Cheviotland; 69, Westmorland with Furness; 70, Cumberland; and 71, Isle of Man.

ANON. [signed 'T. C.']. **York S.W.**

Yew Trees [*Taxus baccata*] **called View Trees [at Lightcliffe, near** Halifax; also see Oliver Heywood's Diary, A.D. 1674 and 1679]. N. & Q., Feb. 16th, 1884, p. 130.

ANON. [not signed]. **Lanc. W. and S., York Mid W.**

Flora of the Stonyhurst District [of 10-mile radius] . . **Second** Edition. Clitheroe: . . 1891 [8vo, paper cover, 45 pages; a full enumeration, with localities and English names, and introductory matter; see also notice in J. of Bot., July 1891]. [First edition not yet seen].

ANON. [signed P. R.]. **York S.W.**

[Phenological Notes made by the] Ackworth Boys' N.H.S. [giving dates for *Corylus*, *Galanthus*, *Tussilago*, *Primula vulgaris*, and *Viola odorata*]. N.H.J., April 15th, 1891, p. 51.

ANON. [signed 'D. M. B.']. **York Mid W.**

[Phenological notes made by] York, Botham, Nat. Hist., &c., Club [on *Ranunculus sceleratus* at Hob Moor]. N.H.J., April 15th, 1891, p. 53.

ANON. [not signed]. **York S.E.**

[Bogbean (*Menyanthes trifoliata*) **found at Stamford Bridge by scholars** from The Mount School]. N.H.J., June 15th, 1891, p. 90.

ANON [Signed 'A. G. W.']. **York Mid W.**

[Veronica triphyllos between Acomb and Poppleton]. N.H.J., June 15th, 1891, p. 90.

ANON. [signed 'M. D. D.']. **Westmorland.**

Notes on Dog's Mercury (*Mercurialis perennis*) [as observed in Westmorland, note being dated from Hawkshead, Ambleside]. Sci. Goss., Aug. 1891, pp. 179-181 and figs. 158-169.

ANON. [not signed]. **York Mid W.**

[The Roses of Towton Battle-field: an extract from Leadman's 'Prœlia Eboracensia']. Daily News; reprinted J. of Bot., Oct. 1891, p. 317.

ANON. [not signed]. **York N.E.**

[Bidens tripartita found Sep. 5th, 1891, at Haxby, on an excursion of The Mount, York, Nat. Hist. Society; Autumn Crocuses at Bishopthorpe]. N.H.J., Oct. 15th, 1891, p. 128.

J. ARKLE. **Cheshire.**

Notes from Cheshire [anent lepidoptera mostly; *Silene inflata* **in liberal** supply on the Sealand (land reclaimed from the tidal Dee) within 3 miles of Chester, and a solitary plant in Delamere village]. Ent., Dec. 1891, pp. 287-288.

J. G. BAKER. **Yorkshire, Cheshire.**

On the Rubi of Capel Curig [with a few comparisons with forms of *rhamnifolius* from Yorkshire and Cheshire, *R. affinis* Bab. non W. & N.]. J. of B., Feb. 1891, p. 47.

J. G. BAKER. **North Yorkshire.**

[Exhibition of a curious variety of *Vicia sepium* **found in North** Yorkshire]. Proc. Linn. Soc., Dec. 6th, 1888, publ. Aug. 1891, p. 3.

EUSTACE R. BANKES. **Yorkshire, Westmorland.**

[Potentilla tormentilla alluded to as food plant of lepidoptera in Yorkshire and Westmorland]. E.M.M., July 1891, p. 196.

REGINALD H. BARKER. **York N.E.**

[Saxifraga granulata stated not to grow in the neighbourhood of Hutton Buscel Moor, in a note on] *Larentia ruficinctata* near Scarborough. Nat., Sep. 1891, p. 277.

HOLMES BAXTER. **Lanc. W.**

[Ænanthe crocata mentioned as at] St. Anne's-on-the-Sea. Ent. Record, Nov. 15th, 1891, p. 253.

ARTHUR BENNETT. **York Mid W., Westmorland.**

Notice of the Occurrence of Arenaria gothica, Fries, in Great Britain [at Ribblehead, along with *A. serpyllifolia*, *Sagina nodosa*; and probably also at Grasmere Lake]. Trans. Bot. Soc. Edinb., vol. 18, 1891, pp. 252-4.

W. D. B[RAITHWAITE]. **York S.W.**

Ackworth N.H. Excursions [to South Elmsall; a patch of *Narcissus biflorus* **there].** N.H.J., Sept. 15th, 1892, p. 105.

JAMES BRITTEN ['Editor']. **Lanc. S.**

Prof. Henslow on "Environment" [with casual references to *Erythræa latifolia* on Lancashire sandhills near Liverpool, where it has not been found since 1854]. J. of Bot., May 1891, pp. 148-149.

JAMES BRITTEN and G. S. BOULGER. **Various Counties.**

Biographical Index of British and Irish Botanists [with notices of John Thornhill of Gateshead, Spencer Thomson of Burton-on-Trent, William Threlfall of Preston, Rev. Caleb Threlkeld of Kirk Oswald, Cumberland, Tofield of Doncaster, Rev. Ezerel Tonge of Tockill, Yorkshire, John Townley of Preston, and William Travis of Scarborough]. J. of Bot., Jan. 1891, pp. 18-21. [Brief notices of Sir W. C. Trevelyan of Wallington, Northumberland, Robert Turnbull of Knaresborough and Scarborough, Rev. Wm. Turner of Morpeth, Rev. Michael Tyson of Stamford, Wm. Valentine of Nottingham, and Thos. Velley of Liverpool]. J. of Bot., March 1891, pp. 82-85. [Notices of J. K. Walker of Huddersfield, Rev. John Wallis of Northumberland, James Ward of Richmond, H. C. Watson of Firbeck, P. W. Watson of Hull, Richard Waugh of Northumberland or Durham, F. M. Webb of Liverpool, Wm. Weighell of Sunderland, Tuffen West of Leeds, Rev. Sir Geo. Wheler of Houghton-

le-Spring, Durham]. Journ. of Bot., Aug. 1891, pp. 244-251. [Notices of Rev. Edw. Whitehead of Bolton, Lanc., John Whitehead of Dukinfield, Peter A. Whittle of Goosnargh and Preston, Geo. Wilkinson of Sunderland, Thos. Willisel of Lancs., Edw. S. Wilson of Buglawton, Cumberland, and James Hewetson Wilson of Chorlton, Manchester]. J. of Bot., Nov. 1891, pp. 341-344. [Notices of John Wilson of Kendal, R. Wilson of Medomsley, Durham, Wm. Wilson of Warrington, N. J. Winch of Newcastle, John Windsor of Settle, Rev. H. H. Wood of Westward, Cumberland, Dr. J. B. Wood of Pontefract and Manchester, Rev. Robert Wood of Westward, Cumberland, Rev. W. Wood of Leeds, Wm. Woodville of Cockermouth, John Woodward of Derbyshire, Charles H. Wright, Guide to Lakes, and Rev. James Yates of Liverpool]. J. of B., Dec. 1891, pp. 373-377.

WILLIAM BUCKLER. **Linc. N., Cumberland, Durham.**

The Larvæ | of the | British Butterflies | and | Moths. | . | . | . | . | Vol. I. | . | . | . | . | MDCCCLXXXVI. [8vo, with notes of *Nardus stricta* from top of Green Gable Mountain at head of Buttermere (p. 33); of *Rhyncospora alba* from Epworth (p. 35); *Helianthemum vulgare* near Hartlepool (p. 117)].

Vol. II. | . | . | . | . | MDCCCLXXXVII. [8vo, with notes of *Statice armeria* from Isle of Man (p. 50); *Helianthemum vulgare* near Hartlepool (p. 91)].

Vol. IV. | . . | London: | . . | — | MDCCCXCI. [with note of *Elymus arenarius* at Cleethorpes, May 1871 (expl. pl. 60, fig. 5].

JAMES BUTTERWICK.

Welbeck Abbey—I. The Seat of the Duke of Portland from drawings by H. C. Brewer [including views of the famous Oaks (*Quercus robur*): the Greendale Oak; the Parliament Oak, and Robin Hood's Oak or the Butchers' Shambles]. Graphic, June 8th, 1889, pp. 621-624.

W. NORWOOD CHEESMAN. **York Mid W.**

[Plants observed by] the Yorkshire Naturalists' Union at Malham and Gordale [11th Sep., 1890: *Thalictrum montanum*, *Actæa*, *Meconopsis*, *Viola lutea*, *Hypericum montanum*, *Cochlearia anglica*, four species of *Geranium*, *Geum intermedium*, *Rosa tomentosa*, *Rubus saxatilis*, *Saxifraga hypnoides*, *S. tridactylites*, *Sedum telephium*, *Chrysosplenium alternifolium*, *Parnassia*, *Myrrhis*, *Lactuca muralis*, *Carduus acaulis*, *C. heterophyllus*, *Campanula latifolia*, *Antennaria dioica*, *Cuscuta europæa*, *Lathræa*, *Salvia verbenaca*, *Stachys betonica*, *Pinguicula*, *Potamogeton densus*, and *P. lucens*]. Nat., June 1891, pp. 177-178.

— CLARK. **Cumberland.**

Old and Memorial Trees [in Cumberland, mentioned and tabulated; *Cedrus libani*, *Quercus*, *Juglans regia*, *Abies picea*, *Fraxinus excelsior*, *Larix*, *Fagus sylvatica*, *Pinus sylvestris*, *Ulmus*, *Acer*, *Taxus baccata*, *Æsculus hippocastanum*, *Castanea vulgaris*, *Tilia*, *Salix*, and *Populus fastigiata*]. Hexham Courant; rep. Gard. Chron., July 30th, 1887, pp. 125-6.

HENRY SHORTRIDGE CLARKE. **Isle of Man.**

[Plant noted in a List of] the Heterocera of the Isle of Man [*Petasites vulgaris*]. Brit. Nat., Feb. 1892, p. 25.

H. SHORTRIDGE CLARKE. **Isle of Man.**

[Manx Plants noted in Report for 1890 of] Entomological Section [of Isle of Man N.H.S.; *Silene maritima*, *Fraxinus*, *Urtica*, *Senecio jacobæa*, *Ulmus*, *Armeria maritima*]. Yn Lioar Manninagh, Ap.-Oct. 1891, pp. 265-9.

L. K. CLARK. **York N.E.**

A Primrose [Primula vulgaris] Monstrosity, picked near Byland Abbey [described]. N.H.J., May 15th, 1891, p. 75.

E. MAULE COLE. **York S.E.**

Peat Deposit at Filey [in which W. Cash and W. West have identified leaves of *Salix caprea* and nuts of *Corylus avellana*]. Nat., Jan. 1891, pp. 17-19.

Miss L. COPLAND and Miss CAROLINE BIRLEY. **Durham and York N.W.**

Notes on the Flora of the Færoes [*Polygala amara*, Teesdale, and a form of *Plantago maritima* in Teesdale, on the sugar limestone of Widdy Bank Fell (Baker) being incidentally noted]. J. of Bot., June 1891, pp. 180 and 183.

JOHN CORDEAUX. **Linc. N., York S.E.**

[Plants noted incidentally in] Ornithological Notes from the Humber District, in the Autumn of 1891 [including *Carex riparia* in North Lincolnshire, and *Aster tripolium* at Spurn]. Nat., Dec. 1891, pp. 355 and 363.

[CHARLES] CROSSLAND. **York S.W.**

[Glyceria fluitans, Lotus uliginosus, and Callitriche in a pond at Salterhebble, which yields *Volvox*]. Nat., June 1891, p. 168.

J. BURTT DAVY. **Linc. N. and S.**

Notes on the Rev. W. Fowler's List of Lincolnshire Limestone Plants [giving North Lincolnshire stations for *Dipsacus pilosus*, *Erigeron acre*, *Cnicus eriophorus*, *C. acaulis* and var. *caulescens*, *Salvia verbenaca*, *Linaria elatine*, *Neottia nidus-avis*, *Epipactis media*, *Ophrys apifera*, *Habenaria viridis*, *H. chlorantha*, *Paris*, *Daphne laureola*, *Clematis vitalba*, *Ruscus aculeatus*, *Aconitum napellus*, *Philadelphus coronarius*, *Papaver argemone*, *Arenaria peploides*, *Lepigonum salinum*, *Althæa officinalis*, *Geranium columbinum*, *Trifolium fragiferum*, *Bupleurum tenuissimum*, *Carum petroselinum*, *Eupatorium cannabinum*, *Lactuca virosa*, *Sonchus arvensis* var. *glabra*, *Samolus valerandi*, *Cynoglossum officinale*, *Solanum nigrum*, *Lamium amplexicaule*, *Hippophaë rhamnoides*, *Hydrocharis morsus-ranæ*, *Stratiotes aloides*, *Epipactis latifolia*, and *Asparagus officinalis*, and South Linc. stations for *Spiræa filipendula*, *Cnicus acaulis*, *Salvia verbenaca*, *Cynoglossum officinale*, and *Plantago coronopus*]. Nat., Feb. 1891, pp. 39-42.

J. BURTT DAVY. **Linc. N.**

Additions to the Flora of the Alford District of North Lincolnshire during 1890 [all verified by F. Arnold Lees; three are new to the vice-county, *Sonchus arvensis* var. *glabra*, *Epipactis media*, and *Luzula multiflora* var. *congesta*; the other additions are *Viola hirta*, *Silene noctiflora*, *Hypericum hirsutum*, *Geranium columbinum*, *Trifolium fragiferum*, *Valerianella dentata*, *Pimpinella saxifraga*, *P. major*, *Dipsacus pilosus*, *Cnicus eriophorus*, *Digitalis*, *Epipactis latifolia*, *Bromus asper*, and *Brachypodium pinnatum*; ten plants are then enumerated as found on an excursion to Aby, Claythorpe and Tothill, and 62 as found on one to Mablethorpe]. Nat., March 1891, pp. 65-66.

[C. W.] DEVIT. **York N.E.**

[Spiræa salicifolia in a hedge near Stokesley; new record for the Ayton district]. N.H.J., Nov. 15th, 1891, p. 145.

CHARLES DIXON. **Linc. N.**

Friskney and its Wildfowl [with passing references to the destruction of the luxuriant growth of cranberries (*Oxycoccus palustris*) by drainage of the fens]. Leisure Hour, Oct. 1889, p. 669.

G. CLARIDGE DRUCE. **Cumb., Westm., Durhm., York N.W., Lanc., Ches., Linc. S.**

The Segregates of Spergula arvensis L. [*S. sativa* **noted for Cumberland,** Westmorland, Durham, York N.W., Lancashire, Cheshire, etc., and *S. vulgaris* for Linc. S. and Cheshire, the former being the Scottish and northern form, the latter central English]. J. of Bot., June 1891, p. 175.

GEO. ELISHA. **York N.E.**

[Cerastium arvense near Scarborough, foodplant of *Coleophora chalcogrammella*]. E.M.M., July 1891, p. 198.

S. ELLERSHAW, Sec. **Lanc. S.**

[Phenological notes by] Penketh Girls' N.H.S. [anent *Lonicera periclymenum*, *Chrysanthemum leucanthemum*, *Anagallis arvensis*, *Calluna*, *Senecio jacobæa*, and *Hedera helix*]. N.H.J., Dec. 15th, 1891, p. 165.

JOHN FINLAY. **Northumberland S.**

[Epilobium angustifolium and E. montanum at Meldon Park, Morpeth, recorded in a note on the] Single-broodedness of *Cidaria silaceata*. Ent. Record, Nov. 15th, 1891, p. 257.

W. O. FOCKE. **Durham, York N.W., Chesh., Westm., Cumb.**

List of the British and Irish Rubi in the Herbarium of the late Mr. John Ball, F.R.S. [including the following North English records :—*R. saxatilis* L., near Richmond, Yorkshire, Underbarrow Scar, Westm., Scandale, Westm., Great End, Cumb. ; *R. idæus* L., Rydal, Westm., Helvellyn ; *R. suberectus* G.Anders., Rydal ; *R. rhamnifolius* Wh.&N., Rydal ; *R. muenteri* Marss. (=*R. umbrosus* of Brit. authors), Rydal ; *R. koehleri* Wh.&N., Rydal (see remarks on this) ; *R. corylifolius* Sm., near Marsden, Durham, Cheshire, Westmorland ; *R. cæsius* L., near Kendal ; and *R. cæsius* × *idæus*, Underbarrow Scar, near Kendal]. J. of Bot., June 1891, pp. 162-163.

JOHN B. FOGGITT. **York Mid W.**

Wahlenbergia hederacea in Bowland, Mid-West Yorkshire [near Hareden ; new locality, not recorded in ' Lees ']. Nat., Oct. 1891, p. 312.

WILLIAM FOGGITT. **York N.W.**

The Yorkshire Naturalists' Union at Leckby Carr [on 18th May, 1891 ; *Silene inflata*, *Hypericum dubium*, *Rosa villosa*, *Pimpinella saxifraga*, *Centaurea scabiosa*, *Plantago media*, *Humulus lupulus*, *Fagus* (blighted by frost), two species of *Drosera*, *Vaccinium oxycoccos*, *Lysimachia thyrsiflora*, *Betula glutinosa*, *Eriophorum vaginatum*, *E. angustifolium*, *Calamagrostis lanceolata*, *Scheuchzeria* (noted as extinct), *Thalictrum flavum*, *Ranunculus auricomus*, *Viola alba*, *V. hirta*, *V. riviniana*, *Saponaria officinalis*, *Cerastium arvense*, *Geranium pratense*, *Rubus plicatus*, *Poterium sanguisorba*, *Ribes rubrum*, *Sanicula*, *Campanula latifolia*, *Myosotis palustris*, *Primula caulescens*, *Rumex aquaticus*, *Populus alba*, *Salix fragilis*, *S. alba*, *S. helix*, *S. viminalis*, *S. cinerea*, *Orchis morio*, *Allium scorodoprasum*, *Gagea lutea*, *Ranunculus fluitans*, *Paris*, *Lilium martagon* (naturalised for 40 years in the wood below Asenby), and *Polygonatum officinale* (Baldersby Park, probable escape) noted]. Nat., Aug. 1891, pp. 239-240.

RICHARD FOLKARD, Jun. **All the Counties.**

Plant Lore, | Legends, and Lyrics. | embracing the | Myths, Traditions, Superstitions, and | Folk-Lore of the Plant Kingdom. | By | Richard Folkard, Jun. | London : | Sampson Low, Marston, Searle, and Rivington, | . . | — | 1884. | [All Rights Reserved.] [8vo, cloth, pp. xxiv. +611 : includes note of *Atropa* or *Solanum dulcamara* at Furness Abbey ; and other notes].

H. E. FOX [Distribution for 1888-89]. **Westmorland, Cheshire, Derbyshire. Lanc. S. and W., York Mid W,**

The | Fifth Annual Report | of the | Watson | Botanical Exchange Club, | 1888-1889. | — | [9 lines of officers' names] | — | [motto] | — | **York :** | . . | 1889 [8vo, sewed, 8 pages ; *Ranunculus penicillatus*, *Rubus fissus*, *R. bloxamii*, *Polygonum arenastrum*, *Galium sylvestre* var. *nitidulum*, and *Salix smithiana* var. *sericans* for Derbyshire ; *Cochlearia anglica* var. *hortii*, *Lepigonum salinum* var. *neglectum*, *Rubus hamulosus*, *R. carpinifolius* and *R. sprengelii*, for Cheshire ; *Rubus hemistemon* and *Rosa tomentosa* for South Lancs. ; *Arctium minus*, *Statice limonium* (seashore at Knot End), and *Mercurialis perennis* in flower in Oct. and Nov. (Avenham), for West Lancashire ; *Pyrola secunda* for Westmorland ; and *Epipactis atro-rubens* for Mid West Yorkshire].

ALFRED FRYER. **Cheshire.**

On a New British Potamogeton of the nitens group [which is described under the name of *P. undulatus* Wolfg. var. *cooperi* mihi=*P. crispus* × *P. perfoliatus* ; from the canal at Loughborough and the river Dee near Chester, the latter sent by C. R. Billups]. J. of B., Oct. 1891, pp. 289-292, and tab. 313.

FRED. G. FRYER [Sec.]. **York Mid W.**

[Excursion to Knaresborough and Plompton Rocks; Solomon's Seal, *Polygonatum multiflorum*]. N.H.J., June 15th, 1891, p. 93.

J. H. FRYER. **York Mid W.**

[Polemonium cæruleum at Malham Cove, *Cnicus heterophyllus* **at** Clapham]. N.H.J., Oct. 15th, 1891, p. 129.

J. H. FRYER. **York S.E.**

[Plants found at Pocklington and Allerthorpe Common, 3rd Sep., 1891; *Hypochæris glabra*, *Jasione montana*, *Ornithopus perpusillus*, and *Erica cinerea*]. N.H.J., Nov. 15th, 1891, pp. 147-148.

F. G. GEORGE. **Lanc. W. or S.**

[Exhibition of an Autumnal Flowering Form of *Mercurialis perennis*, with stems 4 ft. in length, found at Preston, Lancs.]. Linn. Soc., Dec. 4th, 1890; Zool., Jan. 1891, p. 37.

J. G. GOODCHILD. **York N.W.**

The Yorkshire Naturalists' Union in Upper Swaledale [Aug. 2nd to 4th, 1890; noting *Epilobium angustifolium*, *Geranium pratense*, *G. sylvaticum*, *Campanula latifolia*, and *Spiræa* as botanical components of the river-bank scenery about Keld]. Nat., July 1891, p. 206.

J. G. GOODCHILD. **York N.W.**

Swaledale Plants [being reply to criticisms by J. G. Baker and Mr. Whitwell, but no details whatever entered into]. Nat., July 1891, p. 218.

J. T. GUMERSALL. **Cumberland.**

Cockermouth [notes made 1st Jan., 1891; Lesser Celandine (*Ranunculus ficaria*) in full bloom; *Viola odorata* in forward bud]. N.H.J., Feb. 15th, 1891, p. 17.

ALLAN B. HALL. **York N.E.**

Records at Thirsk, N. Yorks. [*Monotropa hypopitys* **near Hawnby, along** with *Neottia nidus-avis*; and *Agrimonia odorata* not far away]. N.H.J., Nov. 15th, 1891, p. 156.

JOHN HANDLEY. **Cumberland, York N.W.**

Flower Tints and Rarity [*Betonica officinalis* **and** *Prunella vulgaris* **almost** pure white, near Sedbergh; *Nasturtium sylvestre* near Seascale, new to Cumberland]. N.H.J., Sep. 15th, 1891, p. 115.

JAMES HARDY. **Cheviotland.**

Report of the Meetings of the Berwickshire Naturalists' Club for the year 1889 [noting *Cratægus* and *Anthriscus sylvestris* at Glanton, the latter and *Asperula* also at Eslington, 29th May; *Doronicum pardalianches* and Gean (*Prunus avium*) trees at Glanton Hill; Bromton named from the quantity of *Sarothamnus* thereabout; *Nardus stricta* and *Anthoxanthum odoratum* prominent in the grass of Ingram haughs; *Almus*, *Caltha* and *Ranunculus aquatilis* at Fawdon; *Cratægus* and *Pyrus aucuparia* at Reaveley; *Prunus padus* at Hartside; *Geranium sylvaticum*, *Anemone*, *Primula vulgaris*, *Potentilla tormentilla*, *Viola sylvatica*, *Polygala*, *Digitalis*, *Lotus corniculatus*, *Lysimachia nemorum*, *Thymus serpyllum*, *Cardamine sylvatica*, *Chrysosplenium oppositifolium*, *Carex binervis*, *Pedicularis sylvatica*, and *Salix aurita* near the Linns, Linhope; *Pyrethrum parthenium* a garden escape; *Neottia nidus-avis*, *Epipactis latifolia*, *Rubus saxatilis*, *Listera ovata*, *Carduus heterophyllus*, *L. cordata*, *Vaccinium vitis-idæa*, *Trientalis*, *Paris*, *Pyrola minor*, *Cardamine amara*, *Carex remota*, *Nepeta clinopodium*, *Salix phylicifolia*, *S. repens*, *Stachys betonica*, *Carex cæspitosa*, *Viburnum opulus*, *Prunus padus*, *Pinus sylvestris*, *Genista anglica*, *Valeriana dioica*, *Veronica montana*, *Carex sylvatica*, *C. lævigata*, all noted as gathered in various stations in Cheviotland; *Carex riparia*, *Almus*, *Betula* **at the head of North** Tyne; *Carduus heterophyllus*, *Geranium sylvaticum*, *Chrysanthemum leucanthemum*, all about Kielder; *Nardus stricta*, *Anthoxanthum*, *Aira flexuosa*, *Festuca*

ovina, *Thymus*, *Potentilla tormentilla*, *Polygala* at Paston; *Phalaris arundinacea*, *Carex ampullacea*, *Alisma plantago*, *Polygonum amphibium*, *Rumex palustris*, *Rubus idæus*, *Digitalis*, *Rubus fruticosus*, *Lonicera periclymenum*, *Sarothamnus*, *Campanula rotundifolia*, *Geranium pratense*, *Conium maculatum* near Shotton; *Luzula campestris* in Mindrum Churchyard; *Anthemis cotula* found at Low Buston, new to Alnwick Flora; pink-flowered *Achillea millefolium* and escaped *Symphytum asperrimum* at Beadnell]. Proc. Berw. Nat. Club for 1889, vol. 12, No. 3 (pub. 1890), pp. 436-506.

Notts.

H. HAWKES.

[Crocus vernus from Nottingham]. Midl. Nat., May 1891, p. 120.

Derbyshire.

H. HAWKES.

[Exhibition of *Epipactis latifolia* from Matlock]. Birm. Micr. & Nat. Union, 31st Aug., 1891; Midl. Nat., Oct. 1891, p. 240.

Lanc. S.

G. HAWORTH.

[Phenological Notes made by] Penketh Boys' Field Club [*Mercurialis* 19 days behind average]. N.H.J., Ap. 15th, 1891, p. 52.

York Mid W., Notts.

W. BOTTING HEMSLEY.

The Oak Trees of the World [with casual mention of the girth (78 feet) of the Cowthorpe Oak, and the 'drip-area' (3,000 square yards) of the immense spread oak in Worksop Park, near the White Gate, which had an extent of 180 feet between the ends of opposite branches, and could shelter a regiment of nearly 1,000 horse]. Field, June 6th, 1891, p. 862.

'York.'

WILLIAM HEWETT.

[Lysimachia vulgaris in the locality where *Collix sparsata* occurs, for which it is the food-plant]. Ent., Nov. 1891, p. 271.

York S.E. and N.E.

W. C. HEY.

Some Word-Pictures taken from Nature [with notes of various plants by their English names, as well as of *Melica uniflora*, *Adoxa*, and *Ranunculus sceleratus*, in Saltburn Glen, at the N. end of Danes' Dyke, in Sheriff Hutton Park, at Redcar, and at Ayton]. Nat., July 1891, pp. 215-218.

Lanc. S.

J. SPENCE HODGSON.

The Mild Autumn [at Heaton Mersey; *Fraxinus*, *Quercus*, *Fagus*, and Laburnum, all in good leaf 5th Nov., 1891; usually cleared by then]. N.H.J., Dec. 15th, 1891, p. 170.

Lanc. S.

J. F. H[ILLS] and T. Y[OUDE, Secs.].

Botany [at Penketh; dates for *Caltha* **and** *Cardamine pratensis*]. N.H.J., May 15th, 1891, p. 70.

York N.W., N.E., S.E., S.W., Mid W., Durham.

CHARLES P. HOBKIRK and P. F. LEE.

Disappearance of Plants in Yorkshire [being a Report made to the Y.N.U. and Brit. Ass., anent *Trollius*, *Crambe maritima*, *Geranium sanguineum*, *G. phæum*, *Astragalus hypoglottis*, *Rubus idæus*, *Eryngium maritimum*, *Pyrola rotundifolia*, *Statice limonium*, *Primula farinosa*, *Menyanthes trifoliata*, *Lathræa*, *Epipactis palustris*, *Ophrys muscifera*, *Cypripedium calceolus*, *Paris*, *Ranunculus circinatus*, *Sparganium simplex*, *Chlora perfoliata*, *Xanthium strumarium*, and *Campanula latifolia*]. Nat., Jan. 1891, pp. 3-6.

Cumberland.

J. B. HODGKINSON.

[Scabiosa succisa mentioned as food plant for *Melitæa artemis* **at Orton** Moss, near Carlisle]. Ent. Record, Oct. 15th, 1891, p. 220.

Cumberland.

WILLIAM HODGSON.

Disappearance of Plants in Cumberland [reported for Brit. Ass.; *Ranunculus hederaceus*, *Helleborus viridis*, *Papaver rhœas*, *Cheiranthus*

cheiri, *Crambe maritima*, *Geranium striatum*, *Lotus angustissimus*, *Drosera rotundifolia*, *Scandix pecten-veneris*, *Œnanthe fistulosa*, *Meum athamanticum*, *Erigeron acre*, *Doronicum*, *Tragopogon porrifolius*, *Primula farinosa*, *Gentiana pneumonanthe*, *Menyanthes*, *Solanum nigrum*, *Atropa belladonna*, *Verbascum blattaria*, *Lathræa*, *Nepeta cataria*, *Leonurus cardiaca*, *Ballota nigra*, *Plantago arenaria*, *Adonis autumnalis*, *Euphorbia portlandica*, *Parietaria officinalis*, *Gagea lutea*, *Colchicum autumnale*, *Butomus umbellatus*, and *Phleum arenarium* mentioned, with a number of ancient-date records to show the changes in the flora]. Nat., Jan. 1891, pp. 7-12.

WM. HODGSON. **Cumberland.**

Œnanthe lachenalii in Cumberland: a rectification [of name; the Wath Creek plant recorded in Nat., Oct. 1890, p. 304, was not *Œ. fistulosa*, although that plant does grow near]. Nat., Feb. 1891, p. 42.

P. M. C. KERMODE. **Isle of Man.**

Phenological Observations [giving Manx dates for *Prunus spinosa*, *Viola canina*, *Cardamine pratensis*, *Viola tricolor*, *Raphanus raphanistrum*, *Stellaria holostea*, *Smyrnium olusatrum*, *Oxalis acetosella*, *Scilla nutans*, *Myrica gale*, *Larix*, *Myosotis collina*, *Veronica chamædrys*, *Erodium cicutarium*, *Prunus avium*, *Betula alba*, *Plantago lanceolata*, *Myosotis arvensis*, *Valerianella olitoria*, *Ajuga reptans*, *Silene maritima*, *Armeria maritima*, *Geranium molle*, *Lychnis diurna*, *Sarothamnus*, *Vaccinium myrtillus*, *Euphrasia officinalis*, *Geranium robertianum*, *Trifolium pratense*, *Sherardia arvensis*, *Fumaria officinalis*, *Ornithopus perpusillus*, *Pedicularis sylvatica*, *Potentilla tormentilla*, *Allium ursinum*, *Sanicula*, *Borago officinalis*, *Crataegus*, *Menyanthes*, *Potentilla anserina*, *Anthriscus vulgaris*, *Anthyllis vulneraria*, *Lotus corniculatus*, *Hieracium pilosella*, *Ilex*, *Trifolium repens*, *Lychnis vespertina*, *Chrysanthemum leucanthemum*, *C. segetum*, *Lysimachia nemorum*, *Rubus cæsius*, *Reseda lutea*, *Lychnis flos-cuculi*, *Sambucus nigra*, *Brassica monensis*, *Urtica dioica*, *Habenaria chlorantha*, *Matricaria inodorum*, *Rubus idæus*, *Scrophularia nodosa*, *Rosa spinosissima*, *R. canina*, *Orchis maculata*, *Anagallis arvensis*, *Galium saxatile*, *Comarum palustre*, *Eriophorum*, *Jasione montana*, *Myosotis palustris*, *Hyoscyamus niger*, *Digitalis*, *Epilobium montanum*, *Lonicera periclymenum*, *Sedum anglicum*, *S. acre*, *Spiræa ulmaria*, *Anthemis cotula*, *Agrimonia eupatoria*, *Convolvulus soldanella*, *Galium verum*, *Hypericum androsæmum*, *Circæa lutetiana*, *Hypericum pulchrum*, *Narthecium*, *Epilobium angustifolium*, *Ononis arvensis*, *Campanula rotundifolia*, *Rubus discolor*, *Galeopsis tetrahit*, *Epilobium parviflorum*, *Atriplex hastata*, *Convolvulus sepium*, *Hypericum elodes*, *Nymphæa alba*, *Calluna*, *Erica tetralix*, *Pinguicula lusitanica*, *Solidago virgaurea*, *Campanula hederacea*, *Lycopus*, and *Hedera helix*]. Yn Lioar Manninagh, Apl.-Oct., 1891, pp. 292-7.

E. P. KNUBLEY. **York Mid W.**

Unseasonable Weather in Mid-May (Staveley near Boroughbridge) [and its effect upon field and garden plants and forest trees]. Nat., July 1891, p. 208.

ALEX. D. H. LEADMAN. **York Mid W.**

Prœlia Eboracensia.—Battles fought in Yorkshire: treated Historically and Topographically [an 8vo. volume of 192 pages; with mention of the 'Bur-Tree' (Elder, *Sambucus nigra*) from which Lord Dacre was killed at Towton in 1461 (p. 104), and of the Roses (*Rosa spinosissima*) Red and White, with their quaint legend (p. 110)].

B. B. L[E].T[ALL]. **York N.W. and Mid W.**

[Alpine Penny-cress (*Thlaspi alpestre*) and Alternate-leaved Golden Saxifrage (*Chrysosplenium alternifolium*) between Askrigg and Carperby, O. R. Baynes Wild Tulip (*Tulipa sylvestris*) near Cattal, 13th May]. N. H. J., June 15th, 1891, pp. 90-91.

B. B. LETALL. **York Mid W., N.E., and N.W.**

[Botanical notes made by] York, Botham, N.H. Club [*Hydrocharis morsus-rane* at Askham; *Serratula tinctoria*, *Cnicus heterophyllus*, *C. pratensis*, *Teesdalia*, and *Senecio viscosus*, all from near Pilmoor, *Biaens tripartita* at Haxby, and *Agrimonia odorata* from Hagg Wood; with a few details]. N.H.J., Dec. 15th, 1891, p. 167.

B. B. LETALL. **'York.'**

The Scented Agrimony [(*Agrimonia odorata*) **in abundance in Hagg Wood near York**]. N.H.J., Dec. 15th, 1891, p. 175.

JOHN LEYLAND. **Derbyshire.**

The Peak of Derbyshire [;] its Scenery & Antiquities [with casual mention of various trees as components of scenery]. London, 1891, 8vo., 340 pages, with map and illustrations.

Durham, Chesh., Furness, Cumb., Westmorland, Lanc. S., Derby, York N.W., S.E., Mid W., N.E., Cheviotland.

EDWARD F. LINTON [distributor].

The | Botanical Exchange Club | of the British Isles. | — | Report for 1886. | — | Manchester: | . . | 1887 [8vo. sewed, pp. 143-166; noting *Ranunculus flammula* and *R. reptans* and vars. Ullswater (in Westmorland); *Viola tricolor* near Rillington, York N.E.; *Hypericum elatum* at Sebergham, Cumberland; *Rubus hamosus* at Poppleton, York Mid W.; *R. conspicuus* near Scarborough; *Circea alpina* var. *intermedia*, Windermere Lake; *Pimpinella saxifraga* var. *dissecta* Kiplingcotes, York S.E.; *Cotula coronopifolia* at Leasowe near Birkenhead; *Melampyrum sylvaticum*, Winch Bridge, Teesdale, Durham; *Herniaria hirsuta* at Prestwich, Lanc. S.; *Chenopodium rubrum* f. *pseudobotryoides*, Ross Links, Northumberland; *Salix phylicifolia* var., Tees branch above High Force, Durham; *S. weigeliana* near High Force, Durham; *S. borreriana* in Teesdale; *S. repens* var., Ross Links; *S. purpurea* above High Force, Yorks N.W.; and *Ammophila baltica* at Ross Links; also *Eleocharis acicularis* noted as N.C.R. for Derbyshire].

EDWARD F. LINTON. **Westmorland, Durham, Derbyshire, Cheshire, Lanc. S., York Mid W., N.E., N.W.**

The Botanical Exchange Club of the British Isles.—Report for 1890 [8vo, publ. 1891; pp. 281-321; notes on *Ranunculus boreanus* Jord., fields near York, G. Webster; *Viola riviniana* × *sylvestris*, Shirley, Derbyshire; *V. curtisii*, Lytham, Lancs. W.; *Arenaria gothica* Fr., near Ribblehead, Yorks. Mid-West; *Rubus idæus* var. *leesii* Bab., near Shirley (N.C.R. for Derbyshire); *R. villicaulis* Koehl., near Shirley; two unnamed *Rubi* from Hulland and Atlow, Derbyshire; *R. rusticanus* Merc. × *vestitus* W., Yeldersley, Derbyshire; *R. vestitus* W. & N., Osmaston, Derbyshire; *R. calvatus* Blox. × *pubescens* W. & N., Shirley, Derbyshire; *R. fuscus* W. & N. or *R. heteroclitus* Blox., Shirley; *R. rudis* Weihe, Matlock Bath; *Rosa tomentosa* Sm. var. *scabriuscula* Sm., Brailsford, Derbyshire; *Saxifraga geum* L., near Settle; *S. hirsuta* L., Ingleborough; *Solidago virgaurea* L. var. *angustifolia* Gaud., Grange, Yorkshire, Isle of Man; *Hieracium diaphanum* Fr., Longridge, Lanc. W.; *H. vulgatum* Fr., same locality; *Mentha arvensis* L., cultivated, Shirley, Derb.; *Rumex crispus* × *obtusifolius*, Edlaston Coppy, Derb.; *Salix viridis* Fr., Sturston, near Shirley, Derb.; *S. aurita* L. × *smithiana* Willd., Shirley; *S. aurita* L. × *cinerea* L., cultivated, from Shirley, and *S. aurita* L. × *caprea* L., Shirley].

J. E. NOWERS. **Derbyshire.**

Phenological Observations, 1890 [made on *Ulmus montana* **at Shobnall;** *Bunium flexuosum* at Shobnall Road; *Anemone nemorosa* at Rocester; *Primula vulgaris* at Dovedale; *Crataegus axyacantha*, *Prunus spinosa* at Outwoods; *Æsculus*, *Fagus*, and *Arum* at Drakelow; *Scilla nutans* at Breedon; *Geranium robertianum* at Okamoor, and *Sambucus nigra* and *Iris pseudacorus* at Bretby]. Ann. Rep. Burton-on-Trent N.H.S., Sep. 30th, 1891, pp. 13-14.

EDWARD F. LINTON. **Lanc. W., Derby.**

Some British Hawkweeds [including *Hieracium diaphanum* Fries, from Longridge, Lanc. W., 1874, and *H. crarium* Lindeb., from Dovedale, Derbyshire]. J. of Bot., Sep. 1891, pp. 271-273.

E. S. MARSHALL. **York N.W., Cheviotland, Durham.**

Epilobium Notes for 1890 [with observations on a white-flowered *E. parviflorum* Schreb. from Ainderby, York N.W. (W. M. Rogers), and *E. alsinefolium* × *palustre* (*E. haynaldianum* Hausskn.) from the Cheviots (Herb. Brit. Mus.) and from Weltrope, Durham (J. G. Baker)]. J. of Bot., Jan. 1891, pp. 6-9.

E. S. MARSHALL and F. J. HANBURY. **York Mid W. and N.W., Durham.**

Notes on Highland Plants, 1890 [with comparisons of plants found with the Ribblehead *Arenaria gothica*, and with a *Plantago* from Cronkley and Widdybank Fells in Teesdale]. J. of Bot., April 1891, pp. 110 and 113.

G. E. MARTINDALE. **Durham, York Mid W., Westmorland.**

Hieracium orarium in Durham and West Yorkshire [on the banks of Langdon Beck, Teesdale, and near Clapham; *H. gibsoni* mentioned with several Westmorland stations]. Nat., May 1891, p. 134.

GEO. MURRAY. **York Mid W.**

White Heather [(*Calluna vulgaris*) **at Rombalds Moor and elsewhere near Ilkley]. Sci. Goss., Aug. 1891, p. 188.**

WILLIAM NELSON. **York Mid W.**

[Plants observed by] the Yorkshire Naturalists' Union at Grassington [on June 20th, 1891; *Geranium sylvaticum* at Cracoe, and *Primula farinosa*, *Trollius*, and *Rosa mollis* in Grass Wood]. Nat., Sep. 1891, p. 269.

WILLIAM NELSON. **York S.W.**

[Ranunculus ficaria at Haw Park, noted in] Extracts from a Conchologist's Note-Book. Nat., Sep. 1891, pp. 273-4.

R. NEWSTEAD. **Cheshire.**

[Vaccinium myrtillus in Delamere Forest, where there are many acres of it; *Betula alba* there also]. E. M. M., Ap. 1891, pp. 97-98.

R. NEWSTEAD. **Cheshire.**

[Agrostis vulgaris noted for Manley and Ince, Cheshire, also *Fraxinus* at Ince, in a note] On some New or Little Known Coccidæ found in England. E. M. M., June 1891, pp. 164-166; bibl. note in Ent. Record, June 15th, 1891, p. 80.

J. H. PAYNE. **York S.W.**

Acorus calamus in South Yorkshire [abundant in the Dearne and Dove Canal from Swinton to Barnsley]. Nat., Feb. 1891, p. 37.

E. ADRIAN WOODRUFFE-PEACOCK. **Linc. N.**

Veronica Chamœdrys [aborted in the upper leaves by a small red grub, presumably at Cadney near Brigg]. Sci. Goss., Oct. 1891, p. 237.

CHARLES B. PLOWRIGHT. **York S.W.**

New British Fungus [on *Holcus mollis* **in Sandbank Wood near** Doncaster, Sep. 17th, 1891]. Gard. Chron., Sep. 26th, 1891, p. 374.

GEO. T. PORRITT. **York S.W.**

[Lysimachia vulgaris plentiful at Thorne Waste; *Betula alba* **and** *Populus tremula* also]. Nat., Ap. 1891, p. 118.

JNO. PROUD and G. H. HOWARTH. **Westmorland or Furness.**

[Plants noted at Windermere; *Linaria cymbalaria*, *Saxifraga tridactylites*, *Asperula odorata*, *Cardamine amara*, *Meconopsis*, **and** *Trollius*]. N.H.J., June 15th, 1891, p. 89.

J. W. PROUD. **York N.E.**

[Epipactis latifolia found in Ayton School grounds]. N.H.J., Sep. 15th, 1891, p. 110.

WALTER W. REEVES. **York N.E.**

Varieties of Carex Goodenovii and Helianthemum Chamæcystus at Hayburn Wyke [being var. *juncella* of the former and *β petalis basi-aurantiis* of the latter]. Nat., Dec. 1891, p. 354.

LAWRENCE RICHARDSON. **Cumberland, York N.E., Mid W., Lanc. S.**

Floral Calendar, No. 15, 1891 [giving tabulations and notes of first flowering of *Corylus avellana*, *Primula vulgaris*, *Ranunculus ficaria*, *Mercurialis*, *Tussilago*, *Caltha*, *Glechoma hederacea*, *Cardamine pratensis*, *Prunus spinosa*, *Veronica chamædrys*, *Lychnis diurna*, *Ranunculus bulbosus*, *Plantago lanceolata*, *Ranunculus acris*, *R. repens*, *Trifolium pratense*, and *Crataegus* at Wigton, Cumberland (J. J. Jopling and A. H. Lidbetter), Bolton, Cumberland (M. N. Carr), Thirsk (W., M.S., and A. B. Hall), York (B. B. LeTall, T. E. Harvey, E. C. Morland, J. Glaisyer, Jun., F. G. Fryer, D. M. Barcroft, A. G. Woodhead, E. C. Peacock, Wm. C. Stewart, Chas. H. Harlock, Douglas B. Smith), Settle (F. P. Thompson), Rawdon (W. H. Burdett, J. Robinson, F. Robson, B. Peacock, C. E. Miller, C. P. James, O. E. Wright, etc.), Ackworth (J. H. Fryer, C. J. Evans, J. E. Smith, E. Little), Manchester (Jos. Edwin Smith), and Penketh (J. F. Hills, E. Withers, G. Haworth, etc.); of *Viola odorata*, *Anemone nemorosa*, *Primula veris*, *Stellaria holostea*, *Orchis mascula*, and *Pyrus malus* at all these stations except Penketh; of *Scilla nutans* and *Trifolium repens* at all but Bolton, Cumberland; of *Polygala vulgaris* at all but York and Ackworth; of *Cytisus scoparius* at all but the two Cumberland stations; of *Lotus corniculatus* at all but Rawdon; of *Myosotis palustris* at all but Wigton and York; of *Orchis maculata* at all but Bolton, York, and Penketh, and of *Rosa canina* at all but Ackworth and Penketh; averages and corrected means, and general remarks also given]. N.H.J., Dec. 15th, 1891. pp. 172-174.

C. R. ROEDER. **Isle of Man.**

Folklore [of Isle of Man; concerning *Ranunculus* and *Pyrus aucuparia*]. Yn Lioar Manninagh, Ap.-Oct. 1891, p. 292.

W. MOYLE ROGERS. **York N.E., N.W., Mid W., Derby.**

Notes on Some of the Rubi and Rosæ of the Yorkshire Dales [being detailed records of about a score *Rubi* and half a dozen *Rosæ*, the districts explored being about Helmsley, Northallerton, Richmond, parts of Wensleydale, and about Settle, during August and half September 1890]. J. of Bot., Aug. 1891, pp. 239-243.

J. H. ROWNTREE. **York N.E.**

Saxifraga granulata near Scarborough [occurs in several parts of the district, and even within two or three miles of Hutton Buscel Moor]. Nat., Oct. 1891, p. 312.

ABRAHAM SHACKLETON. **York Mid W. and S.W.**

Disappearance of Yorkshire Plants [giving localities near Keighley from which *Habenaria bifolia*, *Gymnadenia*, *Listera cordata*, *Anagallis tenella*, *Conium maculatum*, *Parnassia*, *Narthecium*, *Vaccinium oxycoccos*, *Primula farinosa*, *Pyrola media*, *Lythrum salicaria*, and *Orobanche major* **have been exterminated since the beginning of the century;** *Orchis maculata* **also noted]. Nat., Mch. 1891, pp. 79-80.**

W. A. SHUFFREY. **York Mid W.**

[List of] The Flowering Plants and Ferns of Littondale [in Mid-West Yorkshire; a brief description of the dale and its strata precedes an enumeration of 337 species, with numerous annotations]. Nat., Feb. 1891, pp. 51-61.

M. B. SLATER. **York S.E.**

[Plants observed by] the Yorkshire Naturalists' Union on the Wolds [at York Dale and Sledmere, 3rd Aug. 1891; *Berberis vulgaris*, *Euonymus europæus*, *Rhamnus catharticus*, *Pyrus aria*, *P. aucuparia*, *Cornus sanguinea*, *Viburnum opulus*, *V. lantana*, *Lonicera xylosteum*, all planted, mentioned as flourishing in York Dale; *Galium mollugo*, *Epilobium angustifolium*

var. *brachycarpum*, *Papaver dubium*, *P. rhœas*, *Thlaspi arvense*, *Reseda lutea*, *R. luteolà*, *Hypericum pulchrum*, *H. hirsutum*, *Ononis spinosa*, *Anthyllis vulneraria*, *Spiræa filipendula*, *Campanula glomerata*, *Orchis maculata*, *Brachypodium pinnatum*, and *Bromus erectus*]. Nat., Oct. 1891, pp. 304-305.

H. T. Soppitt. **York N.E.**

[Plants noted as hosts for Fungi by] the Yorkshire Naturalists' Union at Hayburn Wyke [on July 11th, 1891; *Carduus palustris*, *Orchis latifolia*, *Salix repens*, *Senecio sylvatica*, *Pinus sylvestris*, and *Galium verum*]. Nat., Oct. 1891, p. 291.

Henry T. Soppitt. **York S.W.**

[Plants noted during the] Fungus Foray at Doncaster [on Sep. 16th and 17th, 1891, included *Polygonum hydropiper* and *Holcus mollis*? at Sandal Beat]. Nat., Nov. 1891, p. 341.

J. A. Erskine Stuart. **York Mid W.**

[Plants observed by] the Yorkshire Naturalists' Union at Grassington [on June 20th, 1891; *Thalictrum minus* v. *flexuosum*, *Trollius*, *Viola hirta*, *Geranium sanguineum*, *Rhamnus frangula*, *Spiræa filipendula*, *Rubus saxatilis*, *Dryas* (Arncliffe), *Rosa mollis*, *Saxifraga hypnoides*, *Hieracium anglicum* (Kilnsey Crag), *Pyrola minor*, *Bartsia odontites*, *Melampyrum pratense*, *Salix phylicifolia*, *Polygonatum officinale*, *Convallaria majalis*, and *Melica nutans*]. Nat., Sep. 1891, pp. 265-266.

J. A. Erskine Stuart. **York N.E.**

[Plants observed by] the Yorkshire Naturalists' Union at Hayburn Wyke [on July 11th, 1891; *Ranunculus lenormandi*, *Habenaria viridis*, *Listera cordata*, *Drosera rotundifolia*, *Pinguicula vulgaris*, *Senecio sylvaticus*, *Parnassia palustris*, *Anagallis tenella*, *Narthecium ossifragum*, *Epipactis latifolia*, *Habenaria chlorantha*, *Gymnadenia conopsea*, *Orchis pyramidalis*, *Vicia sylvatica* and *Inula helenium* noted, with localities]. Nat., Oct. 1891, pp. 289-290.

J. A. Erskine Stuart. **York S.W.**

[Plants observed by] the Yorkshire Naturalists' Union in Edlington and Wadworth Woods [and also near Warmsworth and Conisborough, all near Doncaster, 16th and 17th Sept. 1891; *Aquilegia*, *Rhamnus frangula*, *R. catharticus*, *Lysimachia nummularia*, *Erythræa centaurium*, *Inula conyza*, *Erigeron acre*, *Verbascum thapsus*, *Daucus carota*, *Viola hirta*, *V. reichenbachiana*, *Centaurea scabiosa*, *Saponaria officinalis*, *Cerastium aquaticum*, *Sagittaria sagittifolia*, *Potamogeton pectinatus*, *Gentiana amarella*, *Daphne laureola*, *Hypericum montanum*, *Reseda luteola*, *Helleborus viridis*, *Parietaria officinalis*, *Rubus saxatilis*, *Anthyllis vulneraria*, *Galium mollugo*, and *Solidago virgaurea* noted, with stations; also a brief allusion to Salt's collection at Sheffield]. Nat., Nov. 1891, p. 335.

W. S. Sykes. **York Mid W.**

White Varieties [of the Harebell (*Campanula rotundifolia*) and of Heather (*Calluna vulgaris*) near Settle; details given]. Sci. Goss., July 1891, p. 166.

R. F. & F. P. Thompson. **York Mid W.**

Saxifraga oppositifolia at Moughton [near Settle, at 1,150 feet alt., being 450 feet lower than recorded in Lees' West Yorkshire Flora]. Nat., Aug. 1891, p. 252.

W. Thomson and E. Schunck. **Lanc. S. or Cheshire.**

Green Colouring-matter in Buried Leaves [found 21 feet below the surface when digging for the Manchester Ship Canal, and must have lain there for centuries]. Mem. and Proc. Manch. Lit. and Phil. Soc., ii. (1889), pp. 216-9, and pp. 231-3 with a figure; abst. in Journ. of R. Micr. Soc., Feb. 1890, p. 53.

Derbyshire.

C. F. THORNEWILL.

Phenological Observations, 1890 [giving dates for *Galanthus*, *Ranunculus ficaria*, *Æsculus*, and *Cratægus* at Burton-on-Trent; for *Caltha* at Repton Shrubs; and for *Cratægus* at Ashby Road]. Ann. Rep. Burton-on-Trent N.H.S., Sep. 30th, 1891, pp. 13-14.

York N.W.

THOMAS F. WARD.

[Plants observed by] the Yorkshire Naturalists' Union in Upper Swaledale [Aug. 2nd to 4th, 1890; noting *Thalictrum minus*, *Draba incana*, *Cochlearia officinalis*, *Geranium sylvaticum*, *G. lucidum*, *Epilobium angustifolium*, *Peucedanum ostruthium*, *Carduus heterophyllus*, and *Campanula latifolia* as the best plants found]. Nat., July 1891, p. 202.

Derbyshire.

CHARLES WATERFALL.

Discovery of Carex montana, etc., in Derbyshire [at Markland Grips, where also are found *Anthriscus sylvestris*, *Cynoglossum officinale*, *Ophrys muscifera*, *Blackstonia perfoliata* and *Triglochin palustre*; and at Quarry Dam Park Hall Woods, *Ranunculus circinatus*, *Carex remota*, *C. vesicaria*, and *Serratula tinctoria* and var. *monticola*]. Nat., Feb. 1891, p. 50.

Durham, Lancashire, Yorkshire.

A. D. WEBSTER.

The Extermination of British Plants [with note of *Lychnis alpina* at Hobcartin Fell, *Cypripedium calceolus* in Durham, Lancashire, and Yorkshire]. Selborne Mag., April 1889, pp. 49-52.

Derbyshire.

J. G. WELLS.

Phenological Observations, 1890 [on *Corylus avellana* **at Shobnall Road,** *Ranunculus ficaria* and *Iris pseudacorus* at Clay Mills, *Tussilago farfara* and *Ulmus montana* at Outwoods, *Cratægus* at Outwood Hills, *Viola odorata*, *Prunus spinosa*, and *Orchis maculata* at Derby Road, *Stellaria holostea* and *Scilla nutans* at Catton, *Fagus*, *Arum*, *Æsculus*, and *Cratægus* at Repton, and *Sambucus nigra* at Bretby]. Ann. Rep. Burton-on-Trent N.H.S., Sep. 30th, 1891, pp. 13-14.

York N.W. and Mid W., Lake District.

WM. WEST.

Sedum Rhodiola DC. **[not confined to slate rock; notes of its occurrence** otherwise in West Yorkshire and Lake District; of *Leontodon hirtus* up to 700 or 800 feet in West Yorkshire; and of *Arctostaphylos uva-ursi* on Cronkley Scars]. Nat., May 1891, p. 139.

York Mid W.

WM. WEST.

The Towton Rose [is *Rosa spinosissima*, **which grows all along the** Permian limestone about Towton]. J. of Bot., Nov. 1891, p. 346.

York Mid W.

W. WEST, Junr.

Malham Plants [criticising the records of *Cochlearia anglica* (as probably *C. alpina*) and *Carduus acaulis* (suggesting it was *Carlina*); and remarking on the interest of the record of *Cuscuta europæa*]. Nat., Aug. 1891, p. 241.

York N.W.

WM. WEST, Jun.

Agrimonia odorata added to the West Yorkshire Flora [by E. J. Lumb, who found it Sep. 10th, 1889, by the Rawthey, near Sedbergh]. Nat., Oct. 1891, p. 297.

York Mid W.

T. B. WOODD.

[Saxifraga granulata mentioned as not occurring at Oughtershaw, Burnsall, Arncliffe, and Malham, mentioned in a note on] *Larentia ruficinctata* at Oughtershaw, Langstrothdale. Nat., Oct. 1891, p. 309.

York S.E.

A. G. W[OODHEAD].

[Hypochæris glabra and Jasione montana new to York district, found at Allerthorpe Common, near Pocklington, 3rd Sep. 1891]. N.H.J., Sep. 15th, 1891, p. 112.

Linc. N.

E. WOODTHORPE.

[Geum urbanum noted as holding] Acronycta alni Larva in North Lincolnshire [in Stockhill Wood, Strubby, nr. Alford]. Nat., Mch. 1891, p. 68.

Oct. 1897.

Note on the Eggs of the Stone Curlew.—No locality is given for this note—perhaps wisely in the present day. Twenty or twenty-five years ago this Bird (*Œdicnemus œdicnemus*) was not at all uncommon on the waste land bordering the canal from Market Weighton to Selby. I saw it there yearly, and as an ornithologist and oologist used to observe it with interest. Peewits (*Vanellus vanellus*) then bred there so abundantly that the eggs were systematically collected by the farm labourers, and through village dealers sent up to the London market for sale. Amongst the eggs thus obtained those of the Stone Curlew were by no means unfrequent, and the farm boys knew them well. I once owned a large series thus obtained. Soon after the land—poor as the soil was—came under cultivation and lost so many of its wild features that it ceased to interest me. Whether the bird exists there yet I do not know, but doubt it.—N. F. DOBRÉE, Beverley, East Yorkshire, 2nd Sept., 1897.

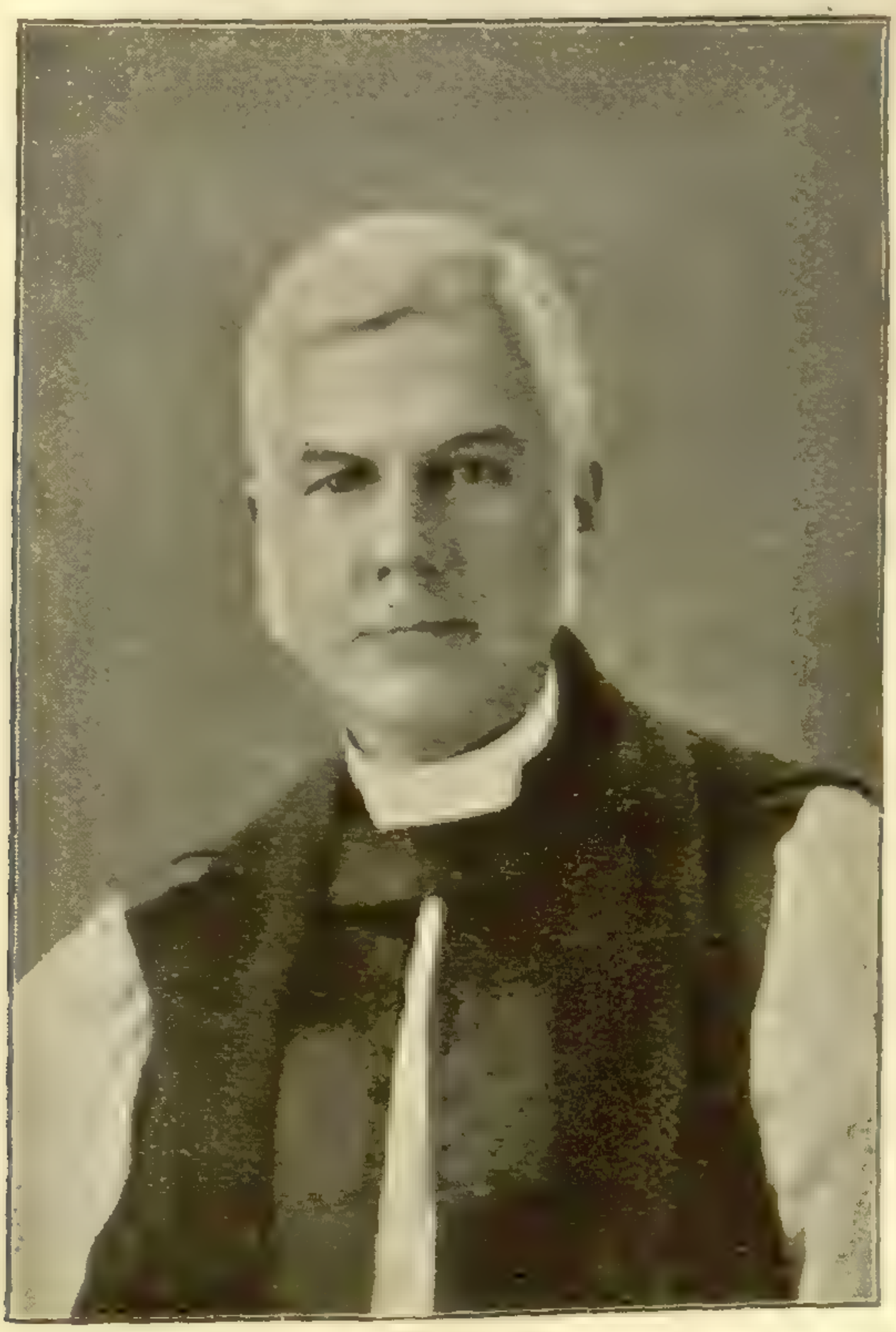
Common Swift Roosting in Tree.—Last evening at seven o'clock, I was near the top of Stepney Hill, Scarbro', and saw two Swifts (*Cypselus apus*) flying near some isolated ash trees by the road side. Presently, one bird flew into one of the trees, amongst the smaller lateral branches, as I thought, possibly to take flies from the leaves. After repeating this action, to my great surprise the bird clung to a pendant branchlet, amongst its leaves, and there hung suspended vertically; its long wings drooping below the tail, at first in horse-shoe form and then afterwards brought together. The bird hung suspended at about twenty feet from the ground, whilst I watched below for a quarter of an hour, till darkness and the rain which was falling freely sent me away. I left the bird there hanging motionless, quite indifferent to the rain and the breeze which caused it continuously to sway backwards and forwards like a suspended scare-crow. The companion bird approached and had a look at the other two or three times and seemed to endeavour to settle on the same twig, but it did not do so and had disappeared when I left. The incident was a great surprise to me as I had never heard that the Swift was in the habit of perching even occasionally, much less settling down for the night in such a place and position, not really perched, but vertically suspended like a great hawk-moth. The Swifts have not all left here. I saw about a dozen flying over the main street this morning.—W. GYNGELL, Scarbro', September 2nd, 1897.

The Eggs of the Roseate Tern.—With reference to my remarks on the nesting of the Roseate Tern (*Sterna dougallii*) in the British Isles, which appeared in the April number of the 'Naturalist,' it will be remembered that I therein emphatically stated that their eggs were easily distinguishable from those of allied species, notwithstanding the late Mr. Henry Seebohm's statement to the contrary in his recent work on 'Eggs of British Birds,' and I will now endeavour to describe their general character. I was under the impression, until quite recently, that these notes would be quite original, but I find that the Rev. J. C. Atkinson, in his book on 'British Birds, their Eggs and Nests,' published in 1861, says:—'Closer observation only has distinguished between their eggs and those of their more numerous associates.' This is the fact, and an experienced eye can readily distinguish the difference; I should say much more easily than between Carrion Crows' and Rooks' eggs, or eggs of other closely allied species. Like most kinds, they vary among themselves. The Roseates, for instance, in the density of the creamy-yellow ground colour—some being very pale, others of a buff-stone colour. The markings generally consist of small speckles of reddish brown, with small smoky-grey underlying spots, distributed more or less all over the shell; others are marked with larger spots, and occasionally blotches, of a deep reddish brown, and sometimes there is a trace of the markings forming a zone round the thick end. Never, as in the case of the Arctic and Common Terns' eggs, does the ground colour consist of a dark stone colour, brown, bluish-green, dull green, or ashy-gey, and there is a common characteristicness about them different from those of the other species mentioned, and the eggs of the Roseate Tern are generally more elongated than those of the Common and Arctic species. As a rule the clutch consists of two eggs only, very rarely are there three. I could mention the names of several gentlemen well versed in oology, including Dr. Bowdler Sharpe, of the British Museum, who have been convinced of their distinctness.—E. G. POTTER, 14, Bootham Crescent, York, Sep. 20th, 1897.

THE LATE LORD BISHOP OF WAKEFIELD.

WILLIAM WHITWELL, F.L.S.

THE morning papers of the 11th of August carried sorrow to the hearts of many, outside of the Anglican communion as well as within it, by their news of the unexpected, almost sudden it seemed, death of the Right Rev. William Walsham How, first Bishop of the diocese of Wakefield. Not long before, he had—it is said at the Queen's own request—written the Jubilee hymn; and still more recently his name appeared in connection with the Lambeth Conference of bishops. It was not known that he was even indisposed,



W. Walsham Wakefield.

but only that on the close of the conference, and on the bank holiday (August 2nd), he had gone for a short rest, accompanied by his eldest son, to Leenane in Connemara. He had preached in his own cathedral on the morning of August 1st, and at the village of Wrenthorpe in the evening.

As a past President of the Yorkshire Naturalists' Union, a brief notice of the deceased Bishop's life is called for in this journal; and

this I may be excused for attempting to supply, on the ground of my having had the pleasure of a certain measure of acquaintance-ship with him, dating from 1863.

William Walsham How was born at Shrewsbury, on Dec. 13th, 1823. In his poem 'The First Spring Day' he wrote—

> My childhood's home was in a town, but there
> A garden-terrace looked o'er meadow-lands,
> Out to a hill, whose hollow banks were rich
> With knots of varied foliage.

A foot-note explains that the passage refers to Haughmond Hill, as seen from the Stone House, Shrewsbury. He goes on to say—

> I should pass
> Such scene a hundred times scarce noticed now.
> But that was then my secret store of joy,
> And thither I would run alone each day,
> And oft-times in a day, to taste anew
> The deep mysterious draught of my delight.

The deep passionate love of Nature which found large and beautiful expression in after years was evidently already manifesting itself. Five years of my own boyhood were lived at Shrewsbury—from $8\frac{1}{2}$ to $13\frac{1}{2}$—and Haughmond Hill, and the terraced houses near the English bridge, and 'Darwin's,' and the scenery of the river above the town, are bound up with the recollections of that time. Nor was I without some dim, longing, unshapen sense of the beauty and wonder of the world in those early days. It was at Shrewsbury, in the spring following my thirteenth birthday—the spring of 1853—that my own love of our wild flowers was first awakened by chapters on botany in the then newly-issuing Cassell's 'Popular Educator.'

The boy was educated at Shrewsbury School, under its celebrated master, Dr. Kennedy. In due time (1841) he passed to Wadham College, Oxford, where he took his degree of B.A. in 1845, with a third class in classics—going on to M.A. in 1847. Two at least of his published poems belong to the undergraduate years. In 1845 he went to Durham University for a time, for special theological study, and in the following year he became curate of Kidderminster, under the Rev. T. L. Claughton, afterwards Bishop, first of Rochester and then of St. Albans. After two years he returned to Shrewsbury, as curate of Holy Cross.

In 1851, Mr. How succeeded, by purchase, to the rectory of Whittington, near Oswestry. His life there, of twenty-eight years, was one of steady activity. Soon becoming diocesan Inspector of Schools, in 1853 he was also appointed Rural Dean of Oswestry. In 1859 he was made Prebendary and Chancellor of St. Asaph's. In

1868 and 1869 he was Select Preacher at Oxford, and between 1869 and 1879 Proctor in Convocation. During these years most, if not all, of his many hymns were written; also a long succession of sermons, expositions, and devotional works, his well-known 'Commentary on the Four Gospels,' and 'Pastor in Parochia.'

In 1879 came the call to the Suffragan Bishopric of London—nominally the bishopric of Bedford, practically that of the East-end of London. How amongst the east-enders he gradually won the titles of 'our Bishop,' 'the 'bus Bishop,' and 'the good Bishop,' is not a story for these pages. Nor can I tell of the influence exerted and work achieved. Archbishop Tait bestowed upon him the Lambeth degree of D.D. on his consecration to the Episcopate, and in 1886 the like degree was given *honoris causâ* by Oxford University.

In the year 1888, Dr. How became connected with Yorkshire by being appointed first Bishop of the newly-created See of Wakefield. In due course of seniority he was called to the House of Lords.

The Bishop was soon invited to, and accepted, the Presidency of the Yorkshire Naturalists' Union, and filled its chair for the year 1890. An abstract of his Presidential address appears in the Annual Report for that year. It was an extemporaneous one, and dealt wisely with the question of the attitude of faith towards science, and *vice versâ*. Dr. How's breadth of mind and scientific sympathies were well shown in a fine tribute to his great fellow townsman, Charles Darwin, and in his distinct acceptance of the principle of evolution.

'He had no fears whatever from a patient, honest, candid, reverent study of Nature. God's library did not consist of one volume alone. . . . He thought that the higher Christian philosophy, now more and more recognising the immanence of the Creator in all creation, could accept the doctrine of evolution without fear. . . . Surely the creating by successive stages of advance was not less wonderful, and gave one no less idea of the power and wisdom of the Creator, than the creating by an enormous number of separate and disconnected acts. If they traced a few links farther back of cause and effect, they must at last come to the point where the last link was held by an invisible Hand.'

The Bishop published two volumes of poems, one about 1859, the other (which contained most of the pieces included in the earlier one) in 1885. The first bore the title of 'Three All-Saints' Summers, and other Teachings of Nature to a Busy Man'; the second simply that of 'Poems.' It is in these that we find the full expression of his delight in the glory of the mountains and the charm of the woods and flowers. I should like to quote some of them, such as 'Cader Idris' or 'The Alps,' truly Wordsworthian in spirit; or

'Mountain Pansies,' 'Pencil or Pen,' or 'Golden Saxifrage'; and two or three of the Barmouth pieces. But the pages of the 'Naturalist' are scarcely the place for more than a reference to them, even if space permitted. But I must cite a few favourite lines from the 'Home View' (1850)—they express so well his life-long belief in the beneficial influence of natural history pursuits.

Oh! God be praisèd for a home
  Begirt with beauty rare,
A perfect home, where gentle thoughts
  Are trained 'mid scenes so fair.

And where (God grant it so) the heart
  That loves a beauteous view,
The while it grows in truth and taste
  May grow in goodness too.

For 'tis my faith that part to part
  So clingeth in the soul,
That whatso'er doth better one
  That bettereth the whole:

And whoso readeth Nature's book
  Widespread throughout the earth,
Will something add unto his love
  Of wisdom and of worth.

Two of his best sonnets, written at Barmouth in 1887, after the issue of 'Poems,' appeared in the 'Spectator,' and other pieces were printed on slips for enclosure in letters to his friends.

It has been said by Matthew Arnold, with some truth—

But Wordsworth's eyes avert their ken
From half of human fate.

That limitation could not be ascribed to Dr. How. His poetry shows an ever-deepening desire to draw from the enjoyment of natural beauty increased will and capacity to sympathise with and help upwards the poor, the suffering, the ignorant, and the degraded. He could say, in what I count his finest sonnet, 'From Nature to Man' (1885)—

Time was when Nature's every mystic mood
Poured round my heart a flood of eager joy;

but now—

Dread mysteries of life and death I scan
And all my soul is only full of Man.

The Bishop had a good acquaintance with our British plants, and possessed a tolerably large herbarium—devoted, however, mainly to the rarer species.

In 1857 he contributed largely to the foundation of the Oswestry and Welshpool Naturalists' Field Club, of which he was at first Vice-President and afterwards President. It was in connection with that Field Club that I first met with Mr. How, on an excursion to

Guilsfield and the 'Trilobite Dingle,' on the 18th August, 1863. The attraction of the 'wilding flowers' was powerful upon each, and availed to draw us together. I pleasurably remember his cordiality to me as a young stranger on that day. At the next meeting of the Club I was formally admitted to its membership. Then and on various subsequent excursions I was privileged to have a good share of his companionship, in the search for special rarities and comparison of 'finds.' One day was given to the ascent and exploration of the grand Breidden hill, near Welshpool. Mr. How took a more round-about route, but his young son and two other boy companions climbed with me up the precipitous face of the hill, past the noted habitat of the *Potentilla rupestris*. We met on the top, by Rodney's Pillar, and there Mr. How unexpectedly encountered his old schoolmaster, Dr. Kennedy. The respectful yet affectionate warmth of his greeting of the Doctor made a strong impression upon my memory. It was to Dr. Kennedy that his first book of poems was dedicated.

Mr. How's hearty enthusiasm and kindly humour combined with the intelligence and precise geological knowledge of a common friend, Mr. David Christopher Davies, afterwards F.G.S., to render the Club meetings very successful and delightful. A favourite pun of our Vice-President's, twitting the geologists, was—that they were sure, whatever they did *not* find, to produce fine specimens of *apatite* at dinner-time.

A small volume of 'Proceedings' of the Club (the only one issued) was published in 1865. This contains some papers by Mr. How—a humorous semi-philosophical one on 'How I learned to see'; another, very amusing, on 'Certain Antiquarian Records of Oswestry and Whittington'; and an account of 'The Botany of the Great Orme's Head.' All were read at the Club meetings.

It may be mentioned, too, that Mr. How also contributed the botanical list to the 'Gossiping Guide to Wales,' the author of which, the late Mr. Askew Roberts, was a member of our Field Club.

In 1866 I had the pleasure of receiving from Mr. How a *fasciculus* of Shropshire Rubi, as prepared and issued by the Rev. W. A. Leighton, a personal friend of his, author of the admirable 'Flora of Shropshire,' and an authority on Brambles in those days. It was accompanied by the following letter:—

Whittington Rectory,
March 3rd, 1866.

My dear Sir,—I have by me a *fasciculus* of Shropshire Rubi, collected and named by Mr. Leighton. May I beg you to accept them, as I fear I shall never give time or attention to this difficult genus, and I am sure you will some day attack them—and conquer them too?—Yours very truly,

W. Wallace How.

Oct. 1897.

The prophecy was never fulfilled, though I still possess and value the gift. A life of strenuous official work, supplemented by many and exacting voluntary engagements, has had no room in it for botanical pursuits to be other than recreative, and the study of the Rubi would in my own case at any rate be the reverse of that. And I must confess to an abiding doubt—an ignorant doubt it may be—whether the multitudinous varieties now named have any permanency.

No account of the Bishop's life can be complete without mention of its connection with Barmouth. He visited that sea-side resort in the first place, I suppose, for the sake of its glorious scenery and the richness of its flora. But before long, in the quiet Llanaber churchyard,

> **A little grave beside the shining sea**

became a magnet to draw him thither which never lost its attractive power. In the third of the 'Three All-Saints' Summers' poems, dated 1854, the poet-father tells how he and his wife watched a sick child (their first-born) through alternations of hope and fear. One day—

> **hope burned up again,**
> **And then I climb'd the highest mountain-point,**
> **And all the earth was glad with me . . .**
> **. . . . . .**
> **. . . Next day I knew not**
> **Whether the sun were bright, or earth were fair.**
> **'Twas very dark with me: I dare not write it.**
> **And now he sleepeth in a little grave**
> **Beside the shining sea, the broad bright sea.**

In a charming poem written in 1885—'A Vision of Barmouth'—he tells how as he paced the hot streets of London he saw

> **—a sketch in a window; and passably done:**

and how it recalled 'the well-known, the dearly-loved view'; and he describes the flowers and the features of the scenery, as memory recalled them all. The last lines are—

> **Ah me! yet the spot that is fairest and dearest to me**
> **Is a little lone grave by the side of the broad shining sea.!**

The summer vacation was thenceforth usually spent at Barmouth for many years.

There, in 1868, the future Bishop had a narrow escape from drowning. Swimming out in a rough sea (the joy of the contest is vividly rendered in 'The Last Bathe': see 'Poems,' page 85) he found himself unable to return, and was overpowered, and finally cast unconscious on the beach. But his life was happily saved when all seemed over.

At Barmouth, in 1875, I unexpectedly met Mr. How, and he at once led me to the beach to look at some of its specialities in the way of plants. In our course we together espied and identified *Mercurialis annuus*, a first find to both. A day or two later he brought me from an inland bog a fine tuft of the delicate and lovely ivy-leaved *Campanula*, of which I had previously seen but one poor specimen. I well recollect, too, the loving pride with which he introduced to me his youngest boy, whom I had not before seen. Love of children was one of his chief and most attractive characteristics. Much of his poetry is about them or for them.

'Barmouth'—in 'Poems'—belongs to somewhere about 1879. It is one of several capital humorous pieces included in the same volume, of which, perhaps, 'The Three Pundits' may be accounted best. It is an address to the 'Men of Barmouth,' by 'An Aggrieved Visitor,' protesting against a high wall by the roadside which cut off the splendid river view, and the disfigurement of their noble rocks by bill-posters. In the way of rhyming it is rather a *tour de force*, for the fifty-four lines of which it is composed all (with a few repetitions) rhyme together with perfect smoothness.

From that wall, so gaunt and bare,
Four and twenty inches pare;
And from all the rock-slabs there
Those atrocious posters tear.

Partly in connection with the death of our friend Mr. D. C. Davies, before alluded to, in August 1887, I received several letters from Dr. How, now Bishop, all from Barmouth. On the 13th he wrote:—'I find the plants here over, or burnt up, except a few. I never saw the *Inula Helenium* so fine as this year. The *Asplenium lanceolatum* is still to be found, but, owing to the depredations of visitors, or perhaps more to the sale of ferns all through the season, there is not a tenth of what there used to be, and the *Osmunda*, which was abundant up every little valley, is all but extinct. I found a few plants of *Asplenium marinum* two or three days ago, a mile or so from Barmouth. The *Œnothera biennis* is more abundant than of old on the sand-banks.'

The closing paragraph of the same letter gives a pleasing picture, illustrative of what I have said concerning the Bishop's love of children:—'Last Sunday I had a delightful children's service on the sand-hills—about 200 coming to it, besides, perhaps, 100 adults. They sung delightfully, and it was very pleasant. I am to repeat the process the next two Sundays, if fine.'

Learning that I was not then possessed of any specimens of *Inula Helenium*, Bishop How was good enough to walk out one

evening to Hendre Mynech on purpose to gather some for me. 'A difficult fellow to dry nicely' is his observation, on sending the fresh plants to London.

On the 26th of the month he wrote :—'I must write you one line before leaving Barmouth, which I do to-morrow.' The observation about the to-morrow has a pathetic interest. The proposed journey was duly made to Whittington, the Bishop's old home. Mrs. How remained at Barmouth, apparently well. Next morning, Sunday, while celebrating early communion, the Bishop received a telegram announcing his wife's death. They had been married for thirty-eight years, during which Mrs. How was an earnest and thoughtful helper in all good works, and especially a friend—as was the Bishop himself—to the noble work carried on by the National Society for the Prevention of Cruelty to Children. The body was brought to Whittington for interment, where also the Bishop's remains now rest.

To maintain the consecutiveness of the Barmouth references I have kept the following out of its proper chronological place. It gives a pleasant glimpse of Dr. How at his London home.

Stainforth House, Upper Clapton, E.,
November 2nd, 1885.

My dear Mr. Whitwell,—It was very kind of you to write to me, and I was very glad to hear of you again . . .

I am living close to a very first-rate botanist here—Mr. F. J. Hanbury—and I now and then go in and look over some of his plants. He has far the best herbarium I ever saw. I myself do very little in this line now-a-days, but a short time ago in the summer I stumbled upon a good plant. I had been speaking at a meeting at Watford, and took a little walk afterwards through some woods, where I found a large quantity of *Impatiens parviflora*, quite a new plant to me.

Believe me, with many thanks, sincerely yours,

Wm Walsham How

The Skipton district must have been delightful botanising ground.

In 1888, when the 'Flora of West Yorkshire' came out—proud of my own little share in such a work—I did myself the pleasure of asking Dr. How's acceptance of a copy. He was then on the point of removal to his new sphere at Wakefield, and he wrote that I could not have given him a book which would have pleased him more.

My own last direct news of Bishop How was in December 1890, when a Shropshire friend—also an old member of the Field Club—wrote :—'I was staying not long ago with the Bishop of Wakefield, who keeps up his interest in natural history, especially botany. Yorkshire doesn't seem a very good botanising county' [Isn't it? Let our Union testify.—W. W.] 'but he showed me one very rare

plant that grows in a wood near him, and was new to me—Herb Christopher.'

I have spoken of Dr. How's humorous poetry, but refrained from giving any examples save the few lines from 'Barmouth.' Its quality might almost be inferred from what has been said of the man: its perfect kindliness and bright and genuine fun. But I am specially privileged in being able to insert a poetical epistle written in August 1895 to our own distinguished member and ex-President, the Rev. William Fowler, M.A., of Liversedge, who has kindly (with the consent of the Bishop's family) allowed it to be printed here. It is a perfect botanical and literary *jeu d'esprit*:—

Devadda, Connemara, *August* 1895.

Dear Fowler, I think, on the whole, you'll agree with me,
This place is delicious (I wish you could be with me!);
But especially charming to one who has got any
Fancy for fishing conjointly with botany.
Just think, when on land from your boat you get out,
Having captured a salmon and ten or twelve trout,
As you lounge on the margin, enjoying your lunch,
You suddenly find that your cushion's a bunch
Of what we consider our fairest of spolia,
Menziesia to wit, species polifolia.
Then to stretch your cramp'd legs you stroll off a short way,
And, lo! there's the Heath that is named from Mackay;
Or perchance you may find (you know it most rare is)
Another Heath bearing the name ciliaris;
Or even by luck one outrivalling any, a
Bush of the Erica Mediterranea.
Then look in that ditch—there's a prize for herbaria!
The true intermediate Utricularia.
You will know it, without either flower or fruit,
By its groups of small bladders apart from the root.
Then in casting your fly you hook into a weed—
Draw it in—why, what is it? a rush or a reed?
No, the treasure you've hook'd in that cast so unwary
Is the Eriocaulon septangulare!
When the salmon have baffled your patience and skill,
Take half a day off, and walk over that hill,
And there, on the rocks (it's no fiction or phantom)
Grows the real unmistakeable true Adiantum;
While in that little lake which the sea-breezes fall on,
All full of Lobelia and Eriocaulon,
(In vain the green depths of its waters defy us)
With a gaff we secure the much-coveted Naias.
Now I think, my dear Fowler, I've well proved my case,
That this is a most undeniable place;
And once more I wish you were with me to fish up
Big trout and rare plants—

YOUR AFFECTIONATE BISHOP.

This sketch cannot be complete without a reference to the Bishop's catholicity of spirit. Many examples might be cited of his friendship with men, who, like myself, belong to the 'Nonconformist' wing of the great Christian Church, and of his sympathy with their religious work; and his beautiful hymns are prized and used in all denominations.

A volume of Dr. How's sermons, entitled 'The Knowledge of God,' was published in 1892, with an excellent portrait, in the interesting 'Preachers of the Age' series.

The portrait which accompanies this paper is from a photograph taken in London, and lent by the Bishop's son, the Rev. H. Walsham How, Vicar of Mirfield, by whom the autographs have also kindly been supplied.

What I have written has been from a full heart, and the reverent memory of a life almost ideally rounded and harmonious throughout—complete in strength and beauty, sweetness and charm, potent in all directions in its purifying and ennobling influence.

NOTES—LEPIDOPTERA.

Sphinx convolvuli and Crambus pinetellus at Windermere.—I have to record the capture of a specimen of *Sphinx convolvuli*, which was taken in the house at the Priory Lodge, Windermere, on Monday last, Sept. 6th. I may also record the capture of *Crambus pinetellus* which I took at light in this house, and which I have not seen for over 30 years.—GEO. CREWDSON, St. Mary's Vicarage, Windermere, 10th Sept., 1897.

Vanessa antiopa near Scarborough.—A specimen of *Vanessa antiopa* was seen in Beedale, a beautiful wooded valley seven miles from Scarborough, on Aug. 9th. I have been at some pains to verify the record by communication with those who were actually on the spot and saw the insect, I myself being only a few yards distant, and feel no doubt as to its genuineness.—JAMES H. ROWNTREE, Westwood, Scarborough, 15th September, 1897.

NOTES—ORNITHOLOGY.

Greenshank in the Peak.—From the 16th to the 23rd of August, a Greenshank (*Totanus canescens*) frequented Combs Reservoir, near Chapel-en-le-Frith, where I had several opportunities of watching it as it fed on the mud-banks or in the shallows at the water's edge.—CHAS. OLDHAM, Sale, Sept. 6th, 1897.

Caspian Tern on the Trent.—An example of this fine Tern (*Sterna caspia*) was shot on the Trent, early on the morning of 3rd August last, near Colwick Park. It is in fully adult plumage, having only a few white feathers amongst the black ones of the crown; apparently due to the commencement of the annual change. Unfortunately the sex was not noted. This species has rarely been found inland, and is the first truly Notts specimen.—F. B. WHITLOCK, Nottingham, Sept. 13th, 1897.

Storm-Petrel and Red-necked Grebe in the Peak.—A few days ago I saw a Storm-Petrel (*Procellaria pelagica*) in a case of stuffed birds at Chapel-en-le-Frith. Its owner told me that it was picked up in an exhausted condition on the railway-line at Combs, after a snowstorm in the winter of 1893-4. At the same time I saw a Red-necked Grebe (*Podicipes griseigena*) which was shot about ten years ago on a brook at Chapel-en-le-Frith by a man named Peter Muir.—CHAS. OLDHAM, Sale, Sept. 6th, 1897.

THE CONSTITUENTS OF THE NORTH LANCASHIRE FLORA, 1597(?)-1893.

LISTER PETTY,
Ulverston.

THIRTEENTH PAPER.

Linaria vulgaris Mill. Clarke's First Record, 1548.

1864. Linton, Lake Country, 326. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. Not uncommon. No locality. **1885.** Baker's Flora, 157. Ascending from the shore at Flookborough and Humphrey Head.

Linaria viscida Mœnch. *L. minor* L. C.F.R., 1633.

1892. Naturalist, 84. Railway embankment near Ulverston, 1891, W. Duckworth.

Scrophularia Balbisii Hornem. C.F.R. (for *aquatica*), 1551.

(As no true *aquatica* has come in my way, I venture on the strength of Mr. Baker's statement below to merge the records for *aquatica* in *Balbisii*).

Betonica aquatica Ger. First reported by Lawson to Ray, April 1688.

1718. Derham, Phil. Lett., 214. 'At Allithwaite, nigh Cartmel, *copiose*, Lawson. **1843.** Jopling, Furness and Cartmel, 269—as *aquatica*. In ditches and pools about Bardsea, Aiton. **1848.** Ray Corresp., Ray Soc., 197 et seq. Lawson to Ray in full. **1864.** Linton, Lake Country, 326. 'Common,' no locality. **1885.** Baker's Flora, 156, as *Balbisii*. Not seen in the heart of the Lake Country, but occurs at . . Allithwaite; Bardsea, and below Humphrey Head. **1889.** Westm. Note-book, 115, as *Balbisii*. Lawson repeated in Martindale's Early Westm. Pl. Rec., and on p. 131 'Humphrey Head, C. C. Babington ex Newbould,' in Mr. A. Bennett's papers on Westm. Pl. For some reason the record is called doubtful, but just below Humphrey Head, west side, there is a deep roadside ditch, and if it does not occur there it is not for want of a good position.

Scrophularia nodosa L. C.F.R., 1597.

1843. Jopling, Furness and Cartmel, 269. Around Conishead Priory, Aiton. In Old Park Wood (Holker), Wilson. **1864.** Linton, Lake Country, 326. 'Common,' no locality.

Mimulus luteus L.

1874. J. of B., Miss E. Hodgson. Bardsea Mill Pond, but near gardens. **1885.** Baker's Flora, 157. Bardsea and Newby Bridge.

Digitalis purpurea L. C.F.R., 1568.

1843. Jopling, Furness and Cartmel, 269. In the woods near Penny Bridge in fine variety, Aiton. **1864.** Linton, Lake Country

326. Common, no locality. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1874.** J. of B., Miss E. Hodgson. White flowered. Old Hall Wood, near Ulverston. Near Haverthwaite. With polypetalous corolla. Rosshead fields, near Ulverston, and repeated: **1885.** Baker's Flora, 156.

Veronica didyma Ter. = **Veronica polita** Fr. C.F.R., 1829.

1885. Baker's Flora, 154. Ascending from wall tops on esplanade at Grange.

Veronica agrestis L. C.F.R., 1597.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Veronica Tournefortii Gmel. (1806). C.F.R., 1829.

V. Persica Poir (1808).

1885. Baker's Flora, 154, as *Buxbaumii* Ter. (1829). Ascending from shore level at . . . Flookborough.

Veronica arvensis L. C.F.R., 1629.

1874. J. of B., Miss E. Hodgson. No locality.

Veronica serpyllifolia L. C.F.R., 1548.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Veronica hybrida L. C.F.R., 1650.

Most of the records call it *V. spicata.*

1775. Jenkinson, Desc. Brit. Pl. 14. About Cartmel Wells. **1778.** S. Robson, Flora, 82. Above repeated, and in **1787.** Withering, ed. 2. Addenda in vol. 3, cxv. Humphrey Head, I. Hall; and on p. 9, Penny Bridge, Woodward; and repeated in subsequent editions of Withering. **1800.** Smith and Sowerby, Eng. Bot. 10, 673, as *hybrida.* 'Our specimen was gathered near Cartmel Wells, Lancs., on Humphrey Head, a steep rock jutting into the sea, by Mr. Bingley.* Mr. Crowe and Mr. Woodward observed the plant in the same place about 18 years ago. (Crowe and Woodward were in North Lancashire in 1781.) **1800.** Smith, Fl. Brit. i., 15. Penny Bridge, Woodward; Cartmel Wells, Crowe and Woodward. **1805.** Turner and Dillwyn, Bot. Guide, ii., 365. Woodward repeated for both stations; and on p. 371, Hall repeated. **1828.** Smith, Eng. Fl., ed. ii., 1, 17-18. Hall's locality repeated by Crowe, Woodward and Bingley. **1830.** Hooker, Brit. Fl., ed. i., p. 3. Lancashire; and repeated in subsequent editions and in those edited by Arnott. **1832.**

*Rev. W. Bingley. See Britten and Boulger's 'Index,' 16. Stated there to have been born at Doncaster, 1774. A biographical writer in the 'Yorkshire Weekly Post,' Oct. 13th, 1894, adds to this—'Baptised Jan. 7th, 1774, as appears from the registers.' He was also an author in other subjects than botany.

Eng. Bot., ed. ii., vol. 1, 12. Hall's locality repeated and in **1835** Watson, New B. G., i., 301-2, on authority of 'B. G.' **1842.** Wordsworth's Scenery, 27; and in **1843,** Jopling, Furness and Cartmell, 269. **1849.** Watson, Cybele, ii., 193. 'Northern limit, Westmorland and Lancashire.' North Lancashire and Westmorland in Lake Province. **1856.** Phytologist, 353. Humphrey Head, Dr. Windsor, who repeats **1857,** 258. **1858.** Irvine, Handb., 442. **1860.** Phytologist, 257. **1861.** Phytologist, 237. C. J. Ashfield. **1864.** Linton, Lake Country, 327. **1866.** Eng. Bot., ed. iii., vol. 6, 62. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 152. Hall and Woodward repeated. **1892.** Naturalist, 82. Seen on Humphrey Head, 1890, L. P. Since this was written I have seen specimens gathered by Mr. W. A. Clarke, F.L.S, 1896.

Veronica officinalis L. C.F.R., 1548.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. Frequent. Pink flowered on Cartmel Fell. **1885.** Baker's Flora, 153. Ascending to 500 yards on Coniston Old Man, near Low Water.

Veronica Chamædrys L. C.F.R., 1570.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Veronica montana L. C.F.R., 1663.

1843. Jopling, Furness and Cartmel, 269. Furness Fells, Aiton. Kirket, Cartmel, Wilson. **1864.** Linton, Lake Country, 327. Walla Crag, rare. **1885.** Baker's Flora, 153. Miller Bay, Windermere, Rev. A. Bloxam;* Islands of Windermere, W. Foggitt; about Coniston, Miss S. Beever.

NOTE.—Kirket, local pronunciation of 'Kirkhead.'

Veronica Anagallis L. C.F.R., 1629.

1874. J. of B., Miss E. Hodgson. Bardsea Mill Pond; Lightburn Park, Ulverston, not common. **1885.** Baker's Flora, 152-3. Ascending from the shore marshes at . . . Cark and Flookborough.

Veronica Beccabunga L. C.F.R., 1548.

1843. Jopling, Furness and Cartmel, 269. In the ditches at Bardsea, Aiton. **1864.** Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 153. Ascending from the shore level at Bardsea.

Euphrasia officinalis L. C.F.R., 1568?

1861. Phytologist, 259. Humphrey Head, Dr. Windsor. **1874.** J. of B., Miss E. Hodgson. No locality.

*Rev. A. Bloxam. See Britten and Boulger's Index, 18.

VAR. **gracilis** Fr.

1874. J. of B., Miss E. Hodgson. Near Goats Water, J. K. Hodgson. Mungeon, Cartmel, with purple flowers; and repeated **1885.** Baker's Flora, 154.

Bartsia Odontites Huds. C.F.R., 1597.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Pedicularis palustris L. C.F.R., 1597.

1843. Jopling, Furness and Cartmel, 269. Bogs and wet meadows in Furness and Cartmel. **1864.** Linton, Lake Country, 326. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Pedicularis sylvatica L. C.F.R., 1597.

Ped. pal. vulg. fl. albo. First reported by Lawson to Ray, April 1688.

1718. Derham Phil. Lett., 220. At Gunnerthwaite in Lancashire, Lawson. **1843.** Jopling, Furness and Cartmel, 269. Occasionally in high heathy pastures in High Furness, Aiton. **1848.** Ray Corresp., Ray Soc., 206. Lawson to Ray in full. **1864.** Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1889.** Westm. Note-book, 116. Lawson repeated in Martindale's Early Westm. Pl. Rec.

NOTE.—The precise locality of Gunnerthwaite is unknown to me.

Melampyrum pratense L. C.F.R., 1570.

1864. Linton, Lake Country, 326. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 155. Ascending from shore level between Grange and Lindale.

Melampyrum sylvaticum L. C.F.R., 1777.

1862. Phytologist, 259. In wood on east side of Humphrey Head, Dr. Windsor. **1874.** J. of B., Blawith. Rev. W. M. Hind. **1885.** Baker's Flora, 155. Woods at Yewdale Beck, Coniston, Miss S. Beever.

Rhinanthus Crista-Galli L. C.F.R., 1597.

1843. Jopling, Furness and Cartmel, 269. In pasture lands of Conishead Priory, Aiton. **1864.** Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

No record for any **Orobanche.**

Lathræa squamaria L. C.F.R., 1597.

1796. Withering, ed. iii., 547. In Plumpton, Jackson; and repeated in 4th, 5th, and 6th editions, but omitted in 7th (1830).

1840. Baxter, Phænog. Bot., vol. v., 365. On a bank under hazels, near Coniston, Miss S. Beever. **1864.** Linton, Lake Country, 326. Coniston Lake side—rare. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1885.** Baker's Flora, 158-9. Linton repeated. **1885.** J. of B., 330. By the Friends' Meeting House, Colthouse, near Hawkshead, W. Satterthwaite.

Utricularia vulgaris L. C.F.R., 1641.

Millifolium palustre galericulatum Ger. Em.

1670. Ray Cat., 210. 'I have found it in a fenny ground near Hawkshead,' Ray. This is not given in the *Synopsis*. **1796.** Withering, ed. iii., 20. Ditches adjoining Outerthwaite, near Flookborough, with the next species, Jackson; and repeated in all subsequent editions. **1874.** J. of B., Miss E. Hodgson. Urswick Tarn. **1885.** Baker's Flora, 170. Miss Hodgson repeated. Windermere. **1885.** J. of Bot., 331. Park Fell, A. W. Bennett. **1889.** Westm. Note-book, 116. Ray repeated in Martindale's Early Westm. Pl. Records.

Utricularia minor L. C.F.R., 1667.

1775. Jenkinson, Desc. Brit. Pl., 5. I found this in the great ditch in the great meadow at Gunnerthwaite.* **1796.** Withering, ed. iii., 20. Ditches adjoining Outerthwaite, near Flookborough, Jackson; and repeated in all subsequent editions, and in **1805.** Turner and Dillwyn, Bot. Guide, ii., 365. **1835.** Watson, New B. G., i., 302. **1885.** Baker's Flora, 170-71. Jackson repeated. In a tarn between Coniston and Hawkshead, with the next species, Miss S. Beever.

NOTE.—Now called, I believe, Warton or Wharton Tarn.

Utricularia intermedia L. C.F.R., 1812.

1850. Bot. Gaz. Between Brathay and Hawkshead, Rev. F. A. J. Hort; and repeated **1885.** Baker's Flora, 170. In a pool near Coniston High Cross, on the left-hand side of the road going from Coniston, Miss S. Beever.

NOTE.—Same locality as above.

Pinguicula vulgaris L. C.F.R., 1597.

1843. Jopling, Furness and Cartmel, 268. In the neighbourhood of Ulverston, Aiton; Stribers, near Cartmel, and by Windermere, Wilson. **1864.** Linton, Lake Country, 327. 'Common,' no locality. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1874.** J. of B., Miss E. Hodgson. Near the Three Shire Stones; peat mosses, Plumpton.

*This place is also mentioned under *Pedicularis sylvatica*, but I do not know if in this district. If not, it is near Yealand, Carnforth.

Verbena officinalis L. C.F.R., 1548.

1842. Wordsworth, Scenery, 29. Roadside near Lindale-in-Cartmel, Gough. **1861.** Phytologist, 237. Allithwaite, C. J. Ashfield. **1864.** Linton, Lake Country, 327. Gough's locality repeated. **1874.** J. of B., Miss E. Hodgson. Near Newland, Ulverston. **1885.** Baker's Flora, 158. Miss Hodgson repeated. In Furness at Lindale, Grange and Allithwaite.

Mentha rotundifolia L. C.F.R., 1670.

Mentastrum folio rugoso rotundifolia J. B.

First reported by Lawson to Ray, April 1688.

1718. Derham, Phil. Lett., 218. By Marsh Grange, in Lancashire, Lawson; and repeated **1848.** Ray Corresp., Ray Soc., 197 et seq. Lawson to Ray in full. **1885.** Baker's Flora, 159; but by a misapprehension of the place name wrongly located. Marsh Grange is at the head, or most inland portion, of Marsh Grange Marsh, between Askham and Dunnerholme. In Lawson's time probably the marsh extended almost to the house, now it is far away, so much of the land having been reclaimed and protected by the railway embankment. [Anne Askew, the martyr, resided at the Grange for a short time, and it was the family home of Margaret Askew, who as Margaret Fell of Swarthmoor, married George Fox.] **1889.** Westm. Note-book, 117. Lawson repeated in Martindale's Early Westm. Pl. Rec.

Mentha sylvestris L. = **M. longifolia** Huds. C.F.R., 1633.

1885. Baker's Flora, 159. 'Mr. J. C. Melvill believes that he saw *M. sylvestris* at Furness Abbey in 1865, but kept no specimen.'

Mentha hirsuta L. C.F.R., 1548.

[**1666** and **1667.** Merrett, Pinax, as *M. aquatica tota nigra.* 'In many places of Lancashire,' but not further located.] **1864.** Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. Plumpton.

Mentha sativa L. C.F.R., 1696.

1874. J. of B., Miss E. Hodgson. Wet meadows near Little Langdale Tarn.

VAR. **rubra** Sm.

'A form very near' this. **1874.** J. of B., Miss E. Hodgson. By the edge of the river Crake; and repeated **1885.** Baker's Flora, 160 —as *rubra.*

Mentha arvensis L. C.F.R., 1570.

1874. J. of B., Miss E. Hodgson. Stubble fields at Pennington.

Mentha Pulegium L. C.F.R., 1562.

1805. West. Antiq. ed. Close, 378. On Goose-green, Dalton, Atkinson; and repeated. **1842.** Evans, Furness and Furness Abbey, 25. **1843.** Jopling, Furness and Cartmel, 269. **1885.** Baker's Flora, 160.

Lycopus europæus L. C.F.R., 1562.

Marrubium aquaticum. First reported by Lawson to Ray, April 1688.

1718. Derham, Phil. Lett., 218. In the moss by Hawkshead . . . Lancashire, Lawson; and repeated **1848.** Ray Corresp., Ray Soc., 197 et seq. Letter in full. **1885.** Baker's Flora, 158-9. Lawson repeated. Hollows of the coast sandhills at Ronnard, F. A. Lees; i.e., Ronhead. **1889.** Westm. Note-book, 117. Lawson repeated in Martindale's Early Westm. Pl. Rec.

Origanum vulgare L. C.F.R., 1548.

1796. Withering, ed. iii., 335-6. In wood at Cartmell Wells, Atkinson; and repeated in all subsequent editions of Withering. This is the wood on west side of Humphrey Head, where the plant is still. **1834.** Otley, Guide, ed. v., 145, and in all following editions. **1843.** Jopling, Furness and Cartmel, 269. Bardsea Park, Aiton. On the limestone rocks between Park Head and Copsehead, Wilson. **1861.** Phytologist, 237 et seq. Shore east side of Humphrey Head, C. J. Ashfield. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1874.** J. of Bot., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 160-61. Atkinson and Aiton repeated. Isles of Windermere, W. Foggitt. Woods at Grange-over-Sands, J. G. Baker. **1892.** Haveland, Distrib. Disease, 379. No locality.

Thymus Serpyllum Fr. C.F.R., 1548.

1857. Phytologist, 257 et seq. Top of Humphrey Head, Dr. Windsor; and repeated. **1861.** Phytologist, 237. C. J. Ashfield. **1864.** Linton, Lake Country, 327. Common, no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Calamintha clinopodium Spem. C.F.R., 1548.

1874. J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 161. Ascending from shore level at Flookborough and Humphrey Head.

Calamintha arvensis Lam. = **C. acinos** Clairv. C.F.R., 1601.

1861. Phytologist, 237. Top of Humphrey Head, western edge, as *Thymus acinos*, C. J. Ashfield; and repeated **1885.** Baker's Flora, 161. Railway bank west of Cark Station, J. G. Baker. Railway bank at Foxfield, Rev. A. Ley.

Calamintha officinalis Mœnch. C.F.R., 1632.

1885. Baker's Flora, 161. Railway embankment at Grange, J. G. Baker.

Nepeta cataria L. C.F.R., 1551.

1796. Withering, ed. iii., 327. On the beach at Rampside, Atkinson, and repeated in all editions of Withering; and in **1805.** West. Antiq., ed. Close, 378. **1842.** Evans, Furness and Furness Abbey, 25. **1885.** Baker's Flora, 165.

Nepeta Glechoma Benth. C.F.R., 1597.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 165. Ascending from shore level at Flookborough, J. G. Baker.

Scutellaria galericulata L. C.F.R., 1576.

1864. Linton, Lake Country, 327. 'Not uncommon,' i.e., in the Lake District. **1885.** Baker's Flora, 165. Windermere; Coniston.

Scutellaria minor L. C.F.R., 1597.

1796. Withering, ed. iii., 540. Goldmire, near Dalton, Atkinson; and repeated in all subsequent editions of Withering; and in **1805.** West. Antiq., ed. Close, 378. **1842.** Evans, Furness and Furness Abbey, 26. **1843.** Jopling, Furness and Cartmel, 269. On the north-east side of Waitham Wood, Cartmel, Wilson. **1885.** Baker's Flora, 166. Hawkshead Hill and about the Coniston Tarns, and by stream below Tarn House, Miss S. Beever.

Prunella vulgaris L. C.F.R., 1548.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of Bot., Miss E. Hodgson. No locality.

Marrubium vulgare L. C.F.R., 1548.

1874. J. of B., Miss E. Hodgson. By Jacklands Tarn, Low Furness (the site of an old garden, as Miss H. subsequently found); and repeated **1885.** Baker's Flora, 165.

Stachys Betonica Benth. C.F.R., 1548.

1843. Jopling, Furness and Cartmel, 269. Sea Wood, Bardsea, Aiton. Around Holker, Wilson. **1864.** Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of Bot., Miss E. Hodgson. No locality.

Stachys palustris L. C.F.R., 1597.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of Bot., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 164. Frequent, from the shore at Flookborough.

THE LINCOLNSHIRE NATURALISTS' UNION AT HOLBECK, SOMERSBY, AND TETFORD.

REV. E. ADRIAN WOODRUFFE-PEACOCK, L.Th., F.L.S., F.G.S.,
Vicar of Cadney, Brigg; General and Botanical Secretary Lincolnshire Naturalists' Union.

ON Monday, August the 1st, the members of the Lincolnshire Naturalists' Union, to the number of about 40, held their fourteenth field meeting at Holbeck, Somersby, and Tetford, in Div. 10, under the able guidance of the Rev. J. Conway Walter.

When the Louth Antiquarian and Naturalists' Society learned that the meeting was to be held at a place so convenient of access for Louth people, they resolved to join in, and a party of 29, headed by the hon. secretaries (Mr. B. Crow and Mr. R. W. Goulding, of Louth), set out from the Museum about 9.15 a.m., reaching Holbeck at noon.

Visitors from other parts of the county included the Rev. F. S. Alston, of West Ashby; Mr. F. M. Burton, F.L.S., F.G.S., of Gainsborough; Mr. J. Eardley Mason, Mr. A. Fieldsend, Mr. G. A. Grierson, F.L.S., and Mr. J. S. Sneath, of Lincoln; Mr. and Miss Stow, of Brandon; Rev. W. H. Daubney, of Leasingham; Rev. H. A. Barker, of Wrangle; Rev. Stafford Bateman, Yarborough; and Rev. F. Freshney, Withcall.

Owing to the inconvenience of trains to Horncastle, many more were prevented attending, and had it not been for the fact of its being Bank Holiday, all coming viâ Horncastle would have had to return for the 6.9 p.m. train, which would have virtually prevented the excursion taking place.

The contingent from the south arriving early, spent the morning in investigating the lakes, bogs, and sandstone rocks of Holbeck, where the Foxglove (*Digitalis purpurea*) was not at all uncommon. They also visited Hoe Hill, which is one of the conspicuous features of the district, and which is supposed to be the site of an ancient British encampment.

Owing to the hilly character of the route the Louth party were late in arriving, but as soon as all were assembled at Holbeck Hall they collected under the pleasant shade of the trees surrounding the lawn, when Mr. Walter read a paper on Hoe Hill, an eminence in the rear of Holbeck, to which interesting traditions attach.

The party then broke up to ramble, according to their several bents—botanical, geological, etc.—searching the woods, dells, rocks, and bogs about the three very pretty lakes of Holbeck, some also climbing Hoe Hill.

At 12 o'clock all reassembled on the lawn at Holbeck, where they found laid out under the shade of the trees a most acceptable and handsome al fresco luncheon, which was greatly enjoyed by all. After partaking of this refreshment a vote of thanks was proposed by the Treasurer, Mr. F. M. Burton, to the Rev. A. B. Skipworth and his friends, Mr. and Mrs. Rogers, for their generous hospitality; and a paper was read by the Rev. Conway Walter, on 'Brinkhill Gold,' a calcareous ironstone concretion. He exhibited specimens which had been analysed by a professional, and found to consist largely of silicate of ammonia.

The party then started for Somersby, some walking and others going in the conveyances, headed by Mr. Conway Walter. On arriving at Somersby, the Rectory, the birthplace of Tennyson, was visited; also the adjoining house, the original of his 'Moated Grange,' and the church with very interesting cross. The party then spent the afternoon in rambling through the woods and by the Somersby Beck, in search of objects of interest. They then walked to the White Hart Inn, at Tetford, where a substantial meat tea was provided.

After this meal the Rev. Conway Walter read a paper on 'Hybrids,' which created great interest, exhibiting a case containing two stuffed specimens of a cross between Fox and Dog, bred by Mr. Stafford Walter, of Horncastle. This paper is given below in extract. He also exhibited several fossils found in the neighbourhood, and an ancient mall, or Roman iron hammer-head, dug up in Horncastle. The most interesting object shown by him was a specimen of the 'Resurrection flower' (*Anastatica hierochuntina*) from Palestine, which had been in the possession of himself and his father more than 50 years; when handed round at the beginning of the repast it looked like a withered ball-shaped bud, on a dead stalk some two inches long. He then put it in a saucer of water, and by the time the tea was finished it had opened out into a beautiful flower, something like a small brown aster. This is a provision of nature in the desert, the flower closing after rain, to retain its moisture, and not opening till rain falls again.

The Vice-President, Mr. John Cordeaux, F.R.G.S., M.B.O.U., then gave an address on the finds of the day. He stated that, owing to the long spell of hot weather, wild flowers were prematurely 'over,' and consequently those found were not so numerous as would have been the case in an ordinary season. Amongst the most interesting found were *Potentilla argentea*, *Filago minima*, and *Malva moschata*. Among birds the least common which had been observed were the Wood Wren and the Turtle Dove, the last

until recent years quite unknown in Lincolnshire. He also mentioned that he had seen within the last few months the very rare *Phylloscopus viridanus* in Lincolnshire, the variety *superciliosa* in Yorkshire, and another variety *proregulus* has been recorded for Norfolk.

A most hearty vote of thanks was accorded the Rev. Conway Walter for the trouble which he had taken to entertain and instruct them. Carriages were then ordered, and the party dispersed for Louth and Horncastle. So ended what was pronounced by all who joined in it to be a most agreeable and successful excursion.

Mr. James Eardley Mason has supplied the following interesting report on the observations made during the day on Economic Entomology and on the Heteropterous Section of the Rhyncota :— Declining the proffered drive from Horncastle Station the recorder made his way to Holbeck on foot, mainly by the highroad, examining the various crops as he sauntered along, hat in hand, under the shade of his umbrella, upon as sweltering a day as he ever walked a six-mile stretch in. The views of the wide fenland, bounded by the hills of the 'Cliff' westward and southward, dominated in the north-west by the grand towers of Lincoln Minster, caused many a halt and backward look as the ascent of the long slope to Greetham Hill Top was slowly won. Neither Hessian Fly in the wheat nor 'gout' in the barley, due to *Chlorops tæniopus*, was noticed. Turnips also showed no signs of the attack of various lepidopterous larvæ (*Agrostis*, *Mamestra*, and others) so common in dry seasons at the root as it first begins to thicken for the bulb. Luncheon over, a start was made on the borders of the upper lake, when the following species of the Heteropterous division of the Rhyncota were met with :—

Scolopostethus affinis Schill. One.

Gerris sp. Many noticed on the water, all immature.

Ploiaria vagabunda L. Several off Spruce Fir (*Abies* sp.); some immature.

Nabis lativentris Boh. Two undeveloped.

Anthocoris sylvestris L. (**nemorum** L. et auct.). A few.

Phytocoris longipennis Flor. A few on Ash (*Fraxinus excelsior*). One very dark specimen.

Bryocoris pteridis Fall. A few, both developed and undeveloped mature individuals.

Lygus pabulinus L. One.

Dicyphus epilobii Reut. Abundant on the Crimson Willowherb (*Epilobium hursutum*).

Ætorhinus angulatus Fall. Several.

Mecomma ambulans Fall. Two. One female brachypterous.
Orthotylus scotti Reut. (**prasinus** Saunders' Synopsis). Some off Ash (*Fraxinus excelsior*).
Phylus palliceps Fieb. One off Filbert (*Corylus avellana* var. *tubulosa*).
Phylus coryli L. One off the same bush.
Atractotomus magnicornis Fall. Some on Larch (*Larix europæa*).
Psallus ambiguus Fall. One off Hawthorn (*Cratægus oxyacantha*).
Psallus alnicola D. & S. One off Beech (*Fagus sylvatica*).

Of Coleoptera were obtained—

Adalia obliterata L. One immature example.
Halyzia 14-guttata L. One example.
Otiorhynchus picipes F. One example.
Cœliodes 4-maculatus L. One example.
Helodes minuta L. Two examples.
Athoüs niger L. One example.

These few beetles got casually into the umbrella used for beating. The wealth of spiders and phalangidæ was astounding, and not even in warm Cornwall had the recorder seen anything to equal it. *Dolomedes mirabilis* was, however, the only one of which he could feel certain. He longed for an arachnologist to sample this rich glen, which is virgin soil, long unsearched by the hand and eye of the naturalist. It merits a long and careful examination.

Botanically speaking, the ground passed over would have been very interesting in an ordinary year, but the dry season had burnt it so completely that little was found. On Tetford Hill the following were taken:—*Reseda luteola* L., *R. lutea* L., *Origanum vulgare* L., *Pastinaca sativa* L., *Hieracium boreale* L., and *Tanacetum vulgare* L. In the Spilsby Sandstone cutting, between Holbeck and Somersby, *Trifolium arvense* L. and *Potentilla argentea* L. were found. The latter species is most curiously confined in its limits in Lincolnshire to this one soil, and within a circumscribed area upon it, though elsewhere it is found on a wide range of sandy soils which are represented in the county. *Chrysanthemum segetum* L. was abundant on most of the ground visited. The less common were *Chelidonium majus* L., *Spergula arvensis* L., *Lycopsis arvensis* L., and *Filago minima* L. There were extensive beds of *Epilobium angustifolium* L. in one boggy place. *Botrychium lunaria* Sw. was reported, but not taken on Hoe Hill, a most likely locality, and *Festuca rubra* L. on Ruckland Hill. The best find of the day was *Chrysosplenium oppositifolium* L., taken at Holbeck.

At Somersby the pretty white form of *Campanula rotundifolia* L. was taken with the type.

The Spilsby Sandstone rocks of Holbeck are the home of the Badger and the Fox still. 'The proximity and actual residence of these two wild species in the same "earth" is not uncommon,' as the Rev. J. Conway Walter pointed out, 'although their habits are so very different: the Badger being mainly a vegetarian, while the Fox is most decidedly carnivorous. I believe, however, that though they mutually respect each other, the companionship is entirely to the advantage of the Fox, who has little notion of sanitary matters, and brings all sorts of carrion to his den to putrefy, which sometimes produces mange; but the Badger is of very cleanly habits, and, acting as a neat housemaid, he sweeps out the house of his untidy neighbour, and so contributes to his health.' Mr. Walter went on to say: 'The Trout of Somersby beck are considered especially good. In years gone by I have enjoyed many a picnic on its banks, when we used to pull off our shoes and stockings—gentlemen as well as boys—and catch the Trout by "tickling" them in their holes: which we afterwards cooked, fresh, on the bank.' This was 'a long time ago' now. Woebetide gentlemen or boys who do such things in these days of trout-rod licences.

The geology of this neighbourhood is most interesting. Going East from Fulletby West Windmill, which stands on chalky boulder clay, to Ulceby Cross Roads, the following strata are passed over in succession:—Kimeridge Clay of the Oolitic series, and Spilsby Sandstone, Claxby Ironstone, Tealby Clay, Tealby Limestone, Carstone, Red Chalk, Lower Chalk, and Middle Chalk of the Cretaceous series. Hoe Hill is an outlier of Calcareous Ironstone left isolated by denudation, belonging to the Tealby Limestone series, and not the Claxby Ironstone beds. But the Claxby Ironstone is found a little further south, outcropping from below the Tealby Clay. Would there were a good geologist in the neighbourhood to work it locally.—E.A.W.-P.

The Rev. J. Conway Walter's Paper on Hybrids.

He remarked that the subject of hybrids has of late engaged the attention of some of our scientific men, both at home and abroad. The case now exhibited is an interesting one. It contains two stuffed specimens of a cross between the Dog and the Fox; the Fox being a male, and the Dog, a half-breed bitch, between Shepherd Dog and Whippet. The experiment was made by Mr. Stafford Walter, auctioneer, of Horncastle, a true lover of nature. The produce of the cross was a litter of six, of which only one eventually

survived. In the case before us the smaller specimen lived twelve weeks, the larger six; so that, rather curiously, the larger specimen is only half the age of the other, which is very much smaller. He has another case of stuffed specimens, but it is at present lent elsewhere.

This hybrid production, having become known through the newspapers, led to a correspondence with various persons interested in the subject of hybrids. Amongst others, Professor Ewart, of Edinburgh, a well-known authority, was much interested in it; also the French savant, Mons. Suchetet, of Rouen, who has published works on hybrids; and he now possesses the mother of these specimens, with a view to further experiments.

I saw the one surviving puppy a few days ago, now full grown. It has a very foxy look about the head, but longer legs, lighter body, shorter coat, and less bushy tail than the pure Fox, and with the keen eye of the Fox, it has the docility of the dog, and is very fond of its master.

I may say that I have been told by an expert, that in cases of crosses generally, the *external* structure of the produce follows that of the *male* progenitor, while the *internal*, neurotic, and other conditions follow those of the mother. For instance, a pure-bred white Lincolnshire boar pig, crossed with a black Berkshire sow, will invariably give a white, or mainly white progeny.

When I acted as guide to this Union four years ago, at Woodhall Spa, I exhibited a stuffed specimen of a cross between Hare and wild Rabbit. I would have shown it again to-day, as there are several new members present on this occasion; but that the roads are too hilly to allow of one's carrying such cases about. I have had much correspondence about it. Among others, Mr. Walter Heape, of Cambridge, who is much interested in the subject of hybrids, recently wrote to me, asking my reasons for supposing it to be such a cross. My reply was, that I had not actually seen the act of copulation, and therefore could not state it as a positive fact; but that my reasons were—that

(1) The animal is the size of a hare.

(2) Its fur is the rabbit grey.

(3) The head is the shorter, and the ears the shorter, and more pricked, of the rabbit.

(4) One which I shot at, and missed, in the ling, bolted straight for a rabbit-hole, as though accustomed to it, and I never knew a hare take to the ground in that ready way. I have known a hare take to the tunnel of a field gateway, when hard pressed by harriers, but that is a totally different thing.

(5) A tradition has long attached to the moor over which I shoot (Kirkby Moor, near Woodhall Spa), that the hare and rabbit do occasionally inter-breed. There is a specimen there at large at the present time, and Mr. H. M. Hawley, of Tumby Lawn, has recently had one stuffed which he shot in Tumby Wood.

(6) I killed a specimen by a kick, as it squatted in the ling, and the Colonel of the 42nd Highlanders, who was shooting with me at the time, agreed that it must be such a cross.

(7) There were several letters in 'The Field' newspaper, some years ago, in which the possibility of such a cross was discussed, and while, as we might say, there were six against it, there were half a dozen in favour of it.

That was my reply.

Mr. Walter Heape, in one of his letters, says. 'I am aware that many naturalists deny that Hares and Rabbits will breed together. I am not, however, myself of that opinion, but I have never had satisfactory proof of such a cross occurring.

He adds, however, that, in the year 1773, the Abbé Demonico Gagliari got two litters from a female Hare by a male Rabbit; that Richard Thursfield also got hybrids of these two species; that Mons. Roux, in 1847, established a breed of 'Leporides,' in Angoulême, where he bred largely hybrids of Hares and Rabbits; and these hybrids were fertile with both parent species, and among themselves; that Baron de Gleichen states that at Hoching, in Canton de la Prusse, Polonaise, hybrids of Hares (female) and Rabbits (male) are generally known. He says, however, that Mons. Broca states that there are anatomical differences between Hare and Rabbit which make it unlikely that they should interbreed; and that the best way to prove it would be to get a male leveret and young doe Rabbit, and bring them up together; although they are less likely to inter-breed in confinement than in a state of nature.

So far Mr. Walter Heape. I may add that last autumn I myself caught a male leveret and put a young doe wild Rabbit in the cage with it. The leveret became fairly tame, and would sit on the kitchen table, and drink milk, and eat from the hand; but a wild Rabbit is, I think, a four-legged Ishmaelite, generally untameable, and it lately ate its way out of the cage and escaped. I have just got another young doe wild Rabbit, about three-parts grown, to go on with the experiment, but I am afraid that the difficulty is now increased in getting them to cohabit, as they have not grown up together. I may here mention that our host of to-day has had a cross between rabbit and guinea pig.

Nov. 1897.

But the following cases have created especial interest:—Professor Ewart, of Edinburgh, has bred a cross between a male Burchell's Zebra and a mare pony, of the Isle of Rum breed, half wild, lent for the experiment by Lord Arthur Cecil. The pony was jet black; the foal resulting, excepting over the hind quarters, had as many stripes as the Zebra sire; the stripes being fawn colour, with background nearly black. In form it closely resembled a well-bred foal. The pony was expected the next season to have a foal, by Professor Ewart's Arab horse, Benazrek.

As another interesting case of a somewhat similar kind, Lord Morton has succeeded in getting a cross between a male Quagga and a nearly pure-bred Arab mare.

Erratum.—Since the first portion of this article was printed off, Mr. John Cordeaux has written, in respect of his being reported to say, on page 319, that 'he had seen within the last few months the very rare *Phylloscopus viridanus* in Lincolnshire, the variety *P. superciliosa* in Yorkshire, and another variety *proregulus* has been recorded for Norfolk.' What he did say was that examples of *Phylloscopus superciliosus* had occurred recently in Yorkshire, *P. viridanus*, the first British example, in North-east Lincolnshire, and *P. proregulus*, also the first British example, in Norfolk. The word '*variety*' was never used by him.—Ed. 'Nat.'

NOTE—MAMMALIA.

Animal Place-Names.—Proofs of the existence of animals now extinct, gathered from place-names, such as those referred to in your notice (No. 266, p. 282) of Mr. Collingwood's 'Book of Coniston,' are not so unusual as the writer seems to infer. Here are a few from this side of the Border, and it would not be difficult to increase the list:—

Wild Cat.—Craigencat (different localities)=rock of the cat; Coire Chat (Ben Cruachan)=corrie or hollow of the cat; Auchnagatt (Aberdeenshire)=field of the cat; Alwhat Hill (Ayrshire)=hill of the cat's cliff or rock; and Wul-cat Brae (Berwickshire)=hill or slope of the wild cat.

Wolf.—Preas-a-mhadaidh (Rosskeen)=Wolf's Bush, said to be the spot where the last Wolf in Scotland was killed, about the beginning of last century; Cnoc-a-mhadaidh (pronounced vadee) (Ross-shire)=hill of the wolf; Polmadie (Lanarkshire and Ayrshire)=pool of the wolf; Loch Maddy (Lewis) and Loch Maddie (Sutherland)=loch of the wolf; and Drummoddie (Wigtonshire)=ridge of the wolf. Our Norse name Ulva=Wolf's island—is thus not quite alike with the Coniston one.

Wild Boar.—Bridge of Turk (Perthshire)=bridge of the hog; Gartwik (Lanarkshire)=enclosure of the hog; Ben Turc=hill of the hog, cf. An Torc, the hill known as the Boar of Badenoch; Carntorcy (Perthshire)=cairn of the hog; Lynturk (Aberdeenshire)=pool of the hog. The other sex is represented by such names as Ben Muich Dhui=hill of the black sow; Balmuchie (Ross-shire)=place or farm of swine; Kinmuck (Aberdeenshire)=sow's head; Eilan-na-muc (Argyllshire, three times)=sow's island, with which compare the name of the larger island called Muck.

The wide distribution of such names certainly seems a form of evidence of the existence of the animals named.—Hugh Boyd Watt, 3, Victoria Drive, Glasgow, 14th September, 1897.

THE CONSTITUENTS OF THE NORTH LANCASHIRE FLORA, 1597(?)-1893.

LISTER PETTY,

Ulverston.

FOURTEENTH PAPER.

Stachys ambigua Sm. Clarke's First Record, 1809.

1885. Baker's Flora, 164. Two places by the road below Sawrey, towards the Ferry Inn; about the lower slate quarries in Coniston village, J. G. Baker; garden fence at Dalton-in-Furness, F. A. Lees.

Stachys sylvatica L. C.F.R., 1629.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Stachys arvensis L. C.F.R., 1632.

1874. J. of B., Miss E. Hodgson. No locality.

Galeopsis Ladanum L. C.F.R., 1629.

1864. Linton, Lake Country, 327. Hawkshead fields; and repeated **1885.** Baker's Flora, 163.

Galeopsis speciosa Mill. C.F.R., 1641.

1796. Withering, ed. iii., 529-30—as *G. cannabinum* Willd. Hedges at Kirkby-in-Furness, Atkinson; and repeated in all subsequent editions of Withering. **1805.** West, Antiq., ed. Close, 377. **1805.** Turner and Dillwyn. Bot. Guide ii., 370. as *versicolor* Curtis. **1834.** Baxter, Phænog. Bot., vol. i., 75. **1835.** Watson, New B. G., i., 302, on authority of 'B.G.' **1842.** Evans, Furness and Furness Abbey, 25. **1885.** Baker's Flora, 163-4. Atkinson repeated. In Leighton Park, close to a deep drain across the bog, Miss S. Beever.

Galeopsis Tetrahit L. C.F.R., 1597.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 163. 'One of the commonest weeds' in the Lake District. 'Ascending to 300 yards over Coniston.'

Lamium hybridum Vill. C.F.R., 1666.

1874. J. of B., Miss E. Hodgson; as *incisum* Willd. By Sea Wood Farmhouse, Bardsea. **1885.** Baker's Flora, 163. Bardsea; Ulverston; Grange-over-Sands.

Lamium purpureum L. C.F.R., 1548.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Lamium maculatum L.

1885. Baker's Flora, 162-3. 'An occasional straggler from gardens,' Sawrey, J. G. Baker.

Lamium album L. C.F.R., 1548.

1874. J. of B., Miss E. Hodgson. Generally found near habitations. **1885.** Baker's Flora, 162. Not seen in the heart of the Lake District or at Coniston, but frequent on the outskirts as at Cartmel, J.G.B.

Lamium Galeobdolon Crantz. C.F.R., 1597.

1864. Linton, Lake Country, 327—as *G. luteum*. Coniston. **1885.** Baker's Flora, 162. Reported from Coniston, but not seen by Miss Beever. [1867. Eng. Bot., ed. iii., vol. vii., p. 76. 'Extends north to Lancashire and Yorks.' South Lancashire this is, for Watson gives vice county 59 only (Top. Bot., 1883). 'Good-lad herb.' The Cumberland localities stand on a different footing.]

Ballota nigra L. C.F.R., 1548.

1889. Westm. Note-book, 131. 'Lake Lancashire, C. C. Babington, ex Newbould.'

NOTE.—Can any reader throw light on this mysterious record, and say where Prof. Babington found, or recorded, this species? If at Furness Abbey it is an alien.

Teucrium Scorodonia L. C.F.R., 1570.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Ajuga reptans L. C.F.R., 1548.

1864. Linton, Lake Country, 327. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Plantago major L. C.F.R., 1538.

1864. Linton, Lake Country, 328. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 175. Ascending to 400 yards on Coniston Old Man, J. G. B.

I have found no records, located or other, for *P. media* in North Lancashire, but of course the plant is present.

Plantago lanceolata L. C.F.R., 1538.

1864. Linton, Lake Country, 328. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

VAR. **altissima.** **1885.** Baker's Flora, 175. Seen at Grange, J.G.B.

Plantago maritima L. C.F.R., 1597.

1843. Jopling, Furness and Cartmel, 267. Between Bardsea and Sandscale, Aiton. Quarry Flat, Holker, Wilson. **1861.** Phytologist, 260. Shore below Humphrey Head, West side, Dr. Windsor.

1874. J. of B., Miss E. Hodgson. Beach at Grange. (Inland at) Pool Bridge, Rusland.

Plantago Coronopus L. C,F.R., 1548.

1843. Jopling, Furness and Cartmel, 267. Shore embankment at Cark, Wilson. **1874.** J. of B., Miss E. Hodgson. Round the shores of the Isle of Walney. **1885.** Baker's Flora, 175. Wilson and Miss Hodgson repeated.

Littorella lacustris L. = **L. juncea** Berg. C.F.R., 1670.

1864. Linton, Lake Country, 328. 'Common,' no locality.

Scleranthus annuus L. C.F.R., 1570.

1874. J. of B., Miss E. Hodgson. Rocky fields and wall tops. **1885.** Baker's Flora, 97. Newby Bridge, W. Foggitt. Abundant on walls near the station at Woodland, Miss Susan Beever. Miss Hodgson repeated. **1889.** Westm. Note-book, 130. The records in Baker given as 'Lake Lancashire,' in Mr. Bennett's 'Records of Westm. Plants.'

Chenopodium olidum Curt.

1885. Baker's Flora, 176. Waste ground at Barrow, W. Foggitt.

Chenopodium album L. C.F.R., 1629

1864. Linton, Lake Country, 328. 'Common,' no locality.
1874. J. of B., Miss E. Hodgson. No locality.

Chenopodium Bonus-Henricus L. C.F.R., 1570.

1861. Phytologist, 238. Side of the churchyard wall, Cartmel, C. J. Ashfield. **1864.** Linton, Lake Country, 328. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Atriplex patula L. C.F.R., 1633.

1874. J. of B., Miss E. Hodgson. No locality.

Atriplex angustifolia Sm. C.F.R., 1633.

1874. J. of B., Miss E. Hodgson. Shores at Humphrey Head and Rough-holme. **1885.** Baker's Flora, 177. Ascending from the coast level in Furness, J. G. Baker.

Atriplex hastata L.

1874. J. of B., Miss E. Hodgson. Near Urswick Tarn.

Atriplex Babingtonii Woods. Circ. 1680, see 1889. C.F.R., 1839.

1874. J. of B., Miss E. Hodgson. Greenodd; Roosebeck. **1885.** Baker's Flora, 177. On the shore at Grange; West of Humphrey Head, at Cark and Flookborough, J. G. Baker. Miss Hodgson repeated. **1889.** Westm. Note-book, 186. Martindale's Extracts from Lawson's Note-book, as *Atriplex maritima nostras*. Furness sands at Roosebeck, Lawson.

Atriplex laciniata L. C.F.R., 1690.

1796. Withering, ed. iii., 11, 274. Rampside, opposite the Isle of Walney and Roosebeck, Low Furness, Woodward, and repeated in all subsequent editions, and repeated **1805.** Turner and Dillwyn, Bot. Guide, ii., 372. **1835.** Watson, New B. G., i., 302, on authority of 'B. G.' **1892.** Naturalist, 81. Walney Island. Between Rampside and Roosebeck, 1888. As recorded by Woodward. L.P.

Atriplex portulacoides L. C.F.R., 1551.

1885. Baker's Flora, 176. In a brackish ditch on Walney Island, opposite Barrow, C. Bailey. On the coast at Barrow, Prof. D. Oliver. Saltmarsh at Kents Bank, and on the railway embankment west of Cark station, J. G. Baker. **1892.** Naturalist, 81. Saltmarsh east of Holme Island; Mr. Bailey's locaiity mentioned as seen, L. P.

Salicornia herbacea L. C.F.R., 1568.

1874. J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 178. On the shore south of Flookborough, J. G. Baker.

NOTE.—Low Marsh, I suppose.

Salicornia procumbens Sm.

1874. J. of B., Miss E. Hodgson. Foxfield saltmarsh, Greenodd saltmarsh; and repeated **1885.** Baker's Flora, 178.

Sueda maritima Dum. C.F.R., 1570

Circ. 1680, see 1889. *Blitum kali minus album dictum.*

1744. Wilson, Syn., 28. At Dunnerholme in Furness, and repeated **1763.** Martyn, Plant. Cantab., 60, as *Chenopodium maritimum* L. **1874.** J. of B., Miss E. Hodgson. Plumpton saltmarsh, Miss M. A. Ashburner. **1885.** Baker's Flora, 178. Saltmarsh near Cark, on the shore west of Humphrey Head, J. G. Baker; Miss Ashburner repeated. **1889.** Westm. Note-book, 117. Wilson repeated, and on p. 131, 'Lake Lancashire, ex Newbould [Baker's Flora, 178.] As usual, I cannot explain what this has to do with the Westmorland Flora or our own.

Salsola Kali L. C.F.R., 1578.

1874. J. of B., Miss E. Hodgson. Roosebeck, Miss M. A. Ashburner, and repeated **1885.** Baker's Flora, 178.

Polygonum Convolvulus L. C.F.R., 1548.

1864. Linton, Lake Country, 328. 'Common,' no locality.
1874. J. of B., Miss E. Hodgson. No locality.

Polygonum aviculare L. C.F.R., 1538.

1864. Linton, Lake Country, 328. 'Common,' no locality.
1874. J. of B., Miss E. Hodgson. No locality.

VAR. **littorale** Link.

1885. Baker's Flora, 180. On the shore at Kent's Bank, J. G. Baker.

Polygonum Hydropiper L. C.F.R., 1548.

1864. Linton, Lake Country, 328, 'Common,' no locality.

1874. J. of B., Miss E. Hodgson. No locality.

Polygonum Persicaria L. C.F.R., 1568.

1864. Linton, Lake Country, 328. 'Common,' no locality.

1874. J. of B., Miss E. Hodgson. No locality.

Polygonum lapathifolium L. C.F.R., 1696.

1874. J. of B., Miss E. Hodgson. No locality.

Polygonum amphibium L. C.F.R., 1597.

1874. J. of B., Miss E. Hodgson, Urswick Tarn.

VAR. **terrestre** Leers.

1874. J. of B., Miss E. Hodgson. Near Urswick Tarn. Plumpton hedges. Stems four feet high.

Polygonum Bistorta L. C.F.R., 1568.

1864. Linton, Lake Country, 328. 'Common,' no locality.

1874. J. of B., Miss E. Hodgson. No locality.

Oxyria digyna Hill. C.F.R., 1640.

1893. J. of B., 374. Tilberthwaite, near Coniston, W. Duckworth.

Rumex obtusifolius L. C.F.R., 1633.

1864. Linton, Lake Country, 328. 'Common,' no locality.

1874. J. of B., Miss E. Hodgson. No locality.

Rumex crispus L. C.F.R., 1633.

1874. J. of B., Miss E. Hodgson. No locality.

VAR. **trigranulatus** Syme.

Is plentiful on the shore at . . . Kent's Bank, Cark and Flookborough, J. G. Baker.

Rumex Hydrolapathum Huds. C.F.R., 1597.

1889. Westm. Note-book, 186. Mr. Martindale's extracts from Lawson's Note-book, circ. 1680, as *Lapathum maximus aquaticus* 'at Marsh Grainge *copiosé*,' Lawson.

Rumex alpinus L.

1885. Baker's Flora, 181. Orchard at Swarthmoor Hall, J. G. Baker. C.F.R., 1538.

Rumex Acetosa L.

Linton, Lake Country, 328. 'Common,' no locality. **1874.** J. of Bot., Miss E. Hodgson. No locality.

Rumex scutatus L.

1885. Baker's Flora, 182. Stray from gardens . . . Allithwaite, J. G. Baker.

Rumex Acetosella L. C.F.R., 1562.

1864. Linton, Lake Country, 328. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Daphne Mezereum L. C.F.R., 1752.

1843. Jopling, Furness and Cartmel, 270. Roudsey and woods about Staveley in Cartmel, W. Wilson. **1861** (dated **1855**). Martineau's Guide, 186. Graythwaite Woods, Dr. Clowes. **1874.** J. of B., Miss E. Hodgson. Thicket near Mansriggs Hall; very doubtfully wild. Said to have been found by woodcutters in Colton Woods and transplanted to their gardens. **1885.** Baker's Flora, 183. Wilson and Miss Hodgson repeated. **1890-92.** Atkinson's Guide to Grange, included on above authority.

NOTE.—The record in Martineau is so vague that perhaps it ought not to be included, as the plant may be bird-sown or even planted.

Daphne Laureola L. C.F.R., 1548.

1861 (dated **1855**). Martineau's Guide, 186. Graythwaite Woods, Dr. Clowes. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1885.** Baker's Flora, 183. Clowes repeated.

Euphorbia Helioscopia L. C.F.R., 1562.

1864. Linton, Lake Country, 328. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Euphorbia Cyparissias L.

1874. J. of B., Miss E. Hodgson. By Jacklands Tarn, and repeated **1885.** Baker's Flora, 184.

For a note on this locality see under *Iberis* ante.

[Charles Wright recorded it from Ulpha, just beyond the Lancashire boundary, and Borrer in Phytologist, 1846. 432, regrets he was unable to visit the place and confirm (or otherwise) the record.]

Euphorbia Paralias L. C.F.R., 1562.

1796. Withering, ed. iii., 448. West side of Walney Island, Atkinson, and repeated in all subsequent editions; and in **1805.** West. Antq. ed. Close, 377. **1842.** Evans, Furness and Furness Abbey, 24. **1843.** Jopling, Furness and Cartmel, 270. Shore between Bardsea and Sandside, Aiton. By Park Head, Holker, W. Wilson. These two last repeated **1885.** Baker's Flora, 184. **1890-92.** Atkinson's Guide to Grange, included on Wilson's authority.

Euphorbia Peplus L. C.F.R., 1597.

1864. Linton, Lake Country, 328. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Euphorbia exigua L. C.F.R., 1562.

1892. Naturalist, 84. In a carrot field at Rampside, in 1888.

Mercurialis perennis L. C.F.R., 1597.

1843. Jopling, Furness and Cartmel, 270. Abundant about Conishead Priory, Aiton. **1864.** Linton, Lake Country, 328. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 185. Ascending from the shore level, at Conishead Priory.

Ulmus montana Sm. C.F.R., 1597.

1874. J. of B., Miss E. Hodgson. Woods, edges, and plantations. Frequent.

Ulmus campestris Sm. C.F.R., 1562.

1864. Linton, Lake Country, 329. No locality.

Humulus Lupulus L. C.F.R., 1548.

1843. Jopling, Furness and Cartmel, 270. In hedges in Low Furness, Aiton. **1874.** J. of B., Miss E. Hodgson. . No locality. **1885.** Baker's Flora, 186. Cark; Allithwaite. Seen only in hedges near villages and farmhouses.

Urtica dioica L. C.F.R., 1562.

1864. Linton, Lake Country, 329. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 185. Ascending to 580 yards on Coniston Old Man, H. C. Watson.

No record for *Urtica urens* L., but it is by no means scarce; however it has not yet obtained a place in any printed list that I have seen.

Parietaria officinalis L. Circ. 1680, see 1889. C.F.R., 1548.

1830. Otley, Guide, ed. iv., 145. Near Cartmel Well and on the walls of Cartmel Church, and repeated in all subsequent editions and in **1849,** ed. viii., 138, Furness Abbey is added. **1843.** Jopling, Furness and Cartmel, 270. Bardsea Hall, Aiton, who repeated Otley's Furness Abbey, and Wilson, his Cartmel Church. **1861.** Phytologist, 237. Wraysholme Tower and wall close by, C. J. Ashfield. **1869.** Aspland's Guide. Within six miles of Grange, A. Mason. **1874.** J. of B., Miss E. Hodgson — as *P. diffusa* Koch. Humphrey Head. Old Limestone walls near Ulverston. **1885.** Baker's Flora, 186. All the localities repeated. Foot of walls on shore, west of Humphrey Head, J. G. Baker. **1889.** Westm. Note-book, 186. Martindale's extracts from Lawson's Note-book, circ. **1680.** On the Mannour house and the Abbey in Furneis, Lawson. **1890-92.** Atkinson's Guide to Grange. Lawson's 'near Cartmel Well' means on Humphrey Head, where I have seen it.

Myrica Gale L. C.F.R., 1548.

1832. Gardeners' Magazine, 528. Marshy ground about Esthwaite, Joshua Major. **1843.** Jopling, Furness and Cartmel, 270. Near Sandside, Aiton. On Roudsey and Stribers Mosses, Wilson. **1864.** Linton, Lake Country, 329. Coniston. Birks Bridge (on the Duddon). **1869.** Bolton, Geol. Fragments, 16. Roudsey. **1874.** J. of B., Miss E. Hodgson. Seathwaite Fells, abundant; and in all the peat mosses of lower grounds. **1885.** Baker's Flora, 192. Ascending from sea level at Ulverston.

Betula alba L. C.F.R., 1551.

1842. Evans, Furness and Furness Abbey, 26. One of the chief indigenous forest trees in Furness. **1864.** Linton, Lake Country, 329. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Betula pubescens Ehrh. C.F.R., 1842.

1874. J. of B., Miss E. Hodgson. Bogs at Stribers, near Haverthwaite.

Alnus glutinosa L. C.F.R., 1548.

1842. Evans, Furness and Furness Abbey, 26. One of the principal underwoods in Furness. **1864.** Linton, Lake Country, 329. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 187. Ascending to 300 yards over Coniston.

Carpinus Betulus L. C.F.R., 1597.

[**1864.** Linton, Lake Country, 329. No locality.] **1885.** Baker's Flora, 187. Head of Esthwaite Water, between Colthouse and Hawkshead.

Corylus Avellana L. C.F.R, 1551.

1842. Evans, Furness and Furness Abbey, 26. One of the principal underwoods in Furness. **1864.** Linton, Lake Country, 329. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Quercus Robur L. C.F.R., 1562.

1842. Evans, Furness and Furness Abbey, 26. One of the chief indigenous forest trees in Furness. **1864.** Linton, Lake Country, 329. Includes both *pedunculata* Ehrh. and *sessiliflora* Salisb. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. *Q. pedunculata* Ehrh. Woods, hedges, and plantations, frequent.

BRITISH YEW-TREES.

The Yew-Trees | of Great Britain | and Ireland | By | John Lowe, M.D.Ed. | Honorary Physician to His Royal Highness | the Prince of Wales; Fellow of the | Linnæan Society; Fellow of the | Botanical Society of Edinburgh | etc., etc. | London | Macmillan and Co., Limited | . . . . . | 1897 | All rights reserved [Demy 8vo., cloth, pp. xiv. + 270 + 23 plates, Price 10s. net].

PERHAPS in these days of centralisation it is no more than a passing sign of the times that monographs should abound. Unfortunately there seems no 'type' specimen with which to compare the 'forms,' or, if any reader prefers, 'states' and 'varieties' that are continually put forward. This 'Book of the Yew-Tree,' as in truth we may call it, is better than most, no doubt on account of its writer being better equipped for his work. Certainly there is a feeling of disappointment in reading it, induced probably by the manner, not the matter

The introduction is good; the historical portion better; the question of age and the methods of getting at the proof; rejuvenescence, rate of growth and variation of rate, and such, are very well done and illustrated with plans of trees showing the dead and living portions. Unfortunately no real rule for calculation is given which one can apply for oneself. Then a chapter on notable trees, with tabular statement of measurements and notes on latest condition; then comes the churchyard Yew, and the unsolved mystery of its appearance there, but the author gives us no more clue. Chapters 8 and 9 treat of the wood and its uses, and bows. Chapter 10, the poisonous qualities; and Chapter 11, poetical allusions. A poor bibliography and an uncertain index. Plenty certainly, but still there is somewhat to add and correct, as must be expected in such a wide undertaking. On page 24 the spelling 'View-trees' is noted, and a reference to 'Notes and Queries,' 1st series, vi., 10, but much later than that, in 6th Series ix. (Vol. i., 1884) the subject came up again and was discussed. To the present writer the way in which authorities are quoted is most irritating. Evidently priority, as understood by most of us, is disregarded here; and if one has a chronological bias, this only tends to strengthen it. On page 100, Caxton's *Festale* is quoted as 'Directions for keeping Fasts all the year.' It should, of course, be 'all the fasts of the year,' but again no date and no reference. The late W. Blades in his *Caxton*, 1882, gives it (1483?). The book, of course, is not paged in our sense of the term, but the reference is Sign. c. fol. v. On p. 106 a bit of folklore is given; to this may be added a trifle more from T. F. Thistleton Dyer's 'Folklore of Plants,' 1889, p. 110, from an old dream book.

As to the Yew being a native of England, no mention is made of the limestone area of Giggleswick; and are there not some

about Brimham, near Dacre Banks, or the limestone of the Lake District, besides Borrowdale, etc.? It is mentioned that sometimes seeds are sown in the excreta of birds. In 'Science Gossip,' 1883, p. 238, it is stated that on the tower of Culmstock Church, Devonshire, 100 feet from the ground, a seedling Yew was growing well, 12 or 13 inches in diameter, but suffering from the ill-treatment of climbing tourists. In regard to planting Yews in churchyards, our author does not seem to have noticed that they are generally on the south side of the church ('Science Gossip,' 1879, p. 18). So far as one person's memory goes, it is the same in the north of England. In 'Notes and Queries,' Dec. 13th, 1879, a correspondent writes of a circle of Yew trees at Llanelly Church, near Abergavenny, which enclosed the building. It was not quite perfect, but was supposed to be the best example remaining. Although perhaps the present writer is doing what has just been condemned—a jumbling up of references—it might be quite worth the author's while to read the notes on archery in Mr. H. H. S. Croft's edition (1883) of Sir Thos. Elyot's 'The Boke named the Governour,' 1531, vol. i, pp. 297 et seq. The medical side of the Yew is very well done. Surely no industrious compiler will now dare to say, as has so often happened, that the species is not poisonous. But medical men are usually in arms at the slightest hint of botanical physic. The 'Brit. Pharmacopeia' now contains more plant preparations than ever it did. So good a man as Sir J. E. Smith, M.D., in his 'Eng. Flora,' ed. 2, declares 'the berries are not poisonous,' as though he were speaking of stone fruit. This chapter ought to be carefully read, and Dr. Lowe's experiments on himself with *Taxus* and his conclusions.

Virgil's story that the Corsican honey was spoilt by the bees visiting Yew flowers is at last settled by a visit paid to Corsica by Dr. Lowe. *Now* the honey cannot be dangerous from the same cause, as no Yews remain in the island. ['Classic' editors, please note.]

On the subject of cattle poisoning, there is a theory that if no water is given to them for some time after they will recover; this was known to me, but confirmation was required. In 'Science Gossip,' 1879, p. 238, col. 2, it is given as the experience of an old farmer that 'drinking does the mischief.'

Why are not the north country trees treated with the same care as in the south in this book? Not having measurements at hand no additions (with the exception below) can be made now. The few famous trees we hear of again and again, but there must be many more. Mr. W. Hodgson, A.L.S., of Workington, kindly sent me

the girth of the tree mentioned in his paper on the 'Flora of Ulleswater District' (Trans. Cumb. Assoc., 1882) at Oldchurch. It is, he tells me, 21 feet 3 inches in girth at 5 feet from the ground, but the tree has a split in the trunk which is, of course, included in the measurement, so that 20 feet is perhaps too little. As the name shows, it is planted close to the site of a church; one destroyed by an incursion of the Scotch about 1389. No surprise need be expressed at the omissions amongst the poetical quotations from Homer to Dr. Conan Doyle. Beaumont and Fletcher's 'Maid's Tragedy' is quoted, but not 'The Faithful Shepherdess,' by John Fletcher, acted 1610.

Yon same dell
O'er topped with mourning Cypress and sad Yew.

Or Churchill's—

The Yew, which in the place of sculptured stone
Marks out the resting-place of men unknown.

The verses ascribed to Sir Thomas Browne are really by William Browne, and, if memory fails not, they are from his 'Britannia's Pastorals'; and is not the quotation on p. 99 from Sir Thos. Stanley verbally wrong? In the index, Haworth Castle (and on p. 82) should be *N*aworth, and Hartbourne Tarrant, *Hurst*bourne. Finally, when the poor plate of the Yewdale tree is replaced by a good one it may be said that the book is very well illustrated.—S. L. Petty.

GILBERT WHITE.

A | **Bibliography** | **of** | **Gilbert White,** | **the** | **Natural Historian and** Antiquarian | of | Selborne: | Edward A. Martin, F.G.S., | [2 lines of authorship] | Published under the auspices of the Selborne Society | [woodcut emblem] | The | Roxburghe Press, | Fifteen, Victoria Street, | Westminster. [Not dated, but our review copy received 30th July, 1897; 8vo., cloth, pp. i.-xiv., 15-274; four illustrations and folding sheet containing a 'Summary of Editions'; price 3/6].

Mr. Martin has divided his little book into nine chapters, whereof the second is occupied with an account of the 'Natural History and Antiquities of Selborne'; the next three chapters enumerate the many editions which have appeared since the original of 1789, and the remaining chapters have regard to the author, his native village, and birthplace. Three of the illustrations are reproduced from the quarto edition of 1813, known as Mitford's or Markwick's edition. The compiler appears to be unaware that the publishers of this edition issued in the same year another in two *octavo* volumes, with a new title-page and some other differences. It may be as well to supply such other additions and corrections as are disclosed by our memoranda.

In the 'Bibliogr. Zool. et Geol.' of Agassiz (iv. p. 560) it is stated (probably on the authority of Jardine) that there is an edition bearing the date 1793. No copy of this appears to be forthcoming, and it is probable such an edition never existed. The same may be said of the supposed Jardine edition of 1830 (tom. cit., pp. 560-561—where it is described as a 'New edit. Edinb. and Lond., 1830, 12°'). Mr. Martin includes this edition in his 'Summary,' but as he supplies no information it is to be supposed he has not handled a copy. Another Jardine edition, described as of 18° size, is stated (p. 561) to have been published in 1839. Strangely enough, Jardine himself completed the fourth volume of Agassiz's 'Bibliographia,' and it is difficult to understand how he allowed these errors to pass—if errors they be.

The account of the 'Bowdlerized' Lady Dover edition in America is very imperfect. It was first published in that country in 1841 (not 1843), and since that date probably not fewer than a score reprints of this and of other editions have appeared. For some of them see Dr. Elliott Cones (Proc. U.S. Nat. Mus., ii. p. 402).

The only translation of 'White's 'Selborne' appears to be that by Meyer, and, as Mr. Martin has not printed the title-page, it may prove of interest if here transcribed:—White's Beyträge | zur | Naturgeschichte von England. | Aus den Englischen übersetzt | und | mit Anmerkungen begleitet | von | Friedrich Albrecht Anton Meyer, | . . . | . . | Berlin, 1792. | . .·. . | [16mo. pp. 1-168].

The White-Marsham correspondence was printed originally in the 'Trans. Norf. and Norw. Nat. Soc.,' vol. ii., pp. 133-195. It has since been reprinted.

A real blemish in the book is that it is undated, and we trust this is not the fault of the compiler. The bibliographical part would have been greatly improved had the name of the editor and the date been printed in the margin opposite the various editions. Those who use the book will experience difficulty in speedily referring to the editions, and the difficulty is all the greater through the book having no index.

W.C.J.R.B.

St. Leonards-on-Sea.

NOTES AND NEWS.

We are in receipt of a copy of the 'Weekly Columbian' for July 28th, 1897, published at Westminster, British Columbia, in which is a long and interesting account of a conference of Fraser River fishermen to meet Professor Edward E. Prince, the Commissioner of Fisheries for the Canadian Dominion. Evidently our late fellow north-countryman is sparing no pains to keep himself fully informed on matters affecting his official duties, especially as there are now proposed various changes in the fishery regulations for the Dominion. We wish Prof. Prince every success, both in his scientific and in his official work.

THE TINTS AND SHADES IN AUTUMN WOODS.

P. Q. KEEGAN, LL.D.,

Patterdale, Ulleswater.

It has been observed with regard to the autumnal colours exhibited by American trees, more especially the maples of New England, that 'a medium amount of moisture and late frost seem to be favourable to the greatest brilliancy in leaves; while, on the other hand, early frost and a great degree of moisture are distinctly unfavourable to the production of the effect.' It is well known that some American maples, scarlet oaks, and chestnuts display in the fall a depth and vividness of colouration which is never seen in Great Britain. Even the leaves of American trees cultivated in Europe have not such marked changes of colour as they exhibit in their native habitats. Nevertheless, it is true that those British forest trees whose foliage is conspicuous in the autumn for even a tolerably fair show of crimson, scarlet, or bright yellow, are nearly allied to, if not specifically identical with those American ones which are eminent for brilliancy of autumnal livery. Hence it may be suspected that the structure of the particular leaf itself has something to do with the alternative of their being either vividly tinted, or otherwise, in the fall. The particular point of structure of the leaf here concerned would seem to be what is called its consistency, i.e., its texture, so to speak, which, according to the name-burdened text-books, may be either 'herbaceous, i.e., thin and flaccid, or succulent, coriaceous, or fleshy.' This 'consistency' seems to be connected not only with the capacity of particular leaves for the retention of water, but also with the greater or less lignification of their cell walls, i.e., their power of forming compounds with the tannin, etc., contained in the sap. Where the leaf is thin, crisp, and dry, as in the beech, maple, Mahonia, etc., there the process of lignification seems to be somewhat arrested, the cell-walls would seem to remain clear and not clogged with phlobaphenes and compounds of tannin, with gum, or proteid substances. Hence on the fall of the leaf in the autumn the red colouring matter formed in solution in the sap shines through the cell, as it were, and is not obstructed in its manifestation, so that here we have a petal-like exhibition of colour. In some cases, as in those of the mountain ash, wild cherry, etc., where ordinarily the leaves in fading become yellowish passing to brown, they under the influence of an exceptionally dry season turn red, just as is the case with many usually pure white flowers turning pink under similar circumstances. These exceptional cases may be explained by the

greater concentration of the cell sap owing to a deficient supply of water from without. When a solution of certain kinds of tannin, which is the source of the red and brown autumnal pigments, undergoes concentration in the presence of dehydrating acids, bases, or crystallisable salts, there are produced various anhydrides, of which the lower or first formed are pink and soluble in acidified water, while the last formed are red-brown and insoluble. The former constitute the colouring matter of the red, the latter that of the brown and russet autumn leaves. Hence, then, it may be readily understood how it comes to pass in the case of leaves which are naturally or artificially bereft of water, whose cell-sap in consequence readily concentrates in the living condition, that a colouring matter is produced, which only awaits and requires the destruction and fading of the protoplasm and its accompanying green chlorophyll in order to manifest its presence in the crimson livery of the autumn woods. It would appear also, as is the case with the more succulent or fleshy leaves as of the alder, ash, willow, elm, etc., where the tannin solution in the cell-sap does not concentrate, the phlobaphene, which has been accumulating on the cell wall perhaps for months beforehand, appears in the fall as a dingy brown or russet; or where little or none of this phlobaphene has been thus produced, then the carotin or the ammoniated rutin or alnein of the leaf serves to impart a brilliant yellow, such as charms us in the birch, elm, or sycamore.

3rd September, 1897.

NOTE—GEOLOGY.

Glacial Boulders at West End, Morecambe.—While sojourning at the West End, Morecambe, a few days ago, I witnessed a number of fine glacial boulders, removed from the red clay in the vicinity of Albert Road, where excavations are now going on for building purposes. Many of the boulders measured ten to twelve feet in circumference, were as smooth as glass, and striated in all directions. They consisted principally of carboniferous limestones, with a few porphyritic greenstones from the Keswick area. Large blocks of local sandstone were also present, the redness of the till here, as indeed throughout Low Furness, being due to the underlying red sandstone, which may be seen in situ at Heysham, Silverdale, Humphrey Head, and other parts of Morecambe Bay. I am informed that no boulders of shap granite have hitherto been observed so far west as Morecambe Bay. Is this correct? I may, however, say that I observed a small boulder of this rock, about two feet square, on the beach by the sea-broken promenade near the Battery Inn. Thinking it of some interest, I called the attention of Mr. Thomas Baxter, Vice-Chairman of the Morecambe Local Board, to its presence, and to whom this portion of the beach belongs, and he kindly undertook to see to its removal to the Winter Gardens for preservation. The stream of shap boulders is, as is well known, continued to the Vale of York, and even as far south as Leicestershire, but I am not aware that the rock has been observed as far west as the Heysham site of Morecambe Bay.—HARRY SPEIGHT, Bingley, October 2nd, 1897.

Naturalist,

NORTH LANCASHIRE PLANTS.

JOHN HENRY,
Barrow-in-Furness.

The following is a short list of plants which I have found in the North Lancashire District. They have been examined by Mr. J. Cosmo Melvill, F.L.S., and two of them which were doubtful confirmed by Mr. J. Gilbert Baker, F.R.S., and Mr. Lister Petty assures me that the habitats of the plants have not previously been recorded for this district; and to these gentlemen I offer my humble thanks for their valuable aid. I have omitted all plants (as far as I know) which have already been recorded for the district, unless I have found them in a different position from the record. I have also in the list four new records, namely, *Rumex maritimus* L., *Melilotus alba* Desr., *Cnicus eriophorus* Roth., *Atriplex littoralis* L. These have been marked with an asterisk in the list.

Clematis vitalba L. Alien. In a high hedge near the railway station at Broughton-in-Furness.

Ranunculus sardous Crantz. Native. Plentiful on waste sandy soil surrounding the Barrow Docks.

Ranunculus flammula L. Native. Abundant in marshy places at North Scales (Walney Island).

Meconopsis cambrica Vig. Alien. On the roadsides and stone walls around Broughton and Foxfield-in-Furness.

Barbarea vulgaris R.Br. Native. Plentiful in a cultivated field at North Scales (Walney Island).

Sisymbrium alliaria Scop. Native. Abundant in one of the lanes near Furness Abbey.

Lepidium sativum L. Alien. Waste ground around the Barrow Docks.

Lepidium draba L. Alien. Waste ground at 'Ramsden Dock,' Barrow-in-Furness.

Raphanus raphanistrum L. Colonist. The yellow and white varieties occur on the south end of Walney Island, and a lilac-coloured variety at 'Ramsden Dock,' Barrow-in-Furness.

Reseda luteola L. Native. Abundant around the sea-wall at Barrow-in-Furness.

Buda marina Dum. Native. On the salt marshes from the village of Biggar to cultivated fields opposite 'Ramsden Dock Station,' on Walney Island.

Hypericum androsæmum L. Native. In the woods between Newby Bridge and Backbarrow.

Melilotus officinalis Lam. Colonist. Plentiful at 'Ramsden Dock,' Barrow.

***Melilotus alba** Desr. Alien. Grows abundantly, interspersed with *M. officinalis* L., at 'Ramsden Dock,' Barrow.

Poterium officinale Hook. fil. Native. Abundant in the damp meadows between Backbarrow and Newby Bridge.

Cotyledon umbilicus L. Native. Abundant in an old wall near Barrow, where it has flourished for the past twenty years.

Sedum rupestre L. Alien. Growing on old walls along the route from Carkmel to Newby Bridge.

Apium graveoleus L. Native. Along the sandy shores of Walney Channel, opposite Biggar village.

Apium nodiflorum Reichb. fil. Native. Abundant in a shallow pool near Furness Abbey.

Pimpinella saxifraga L. Native. Plentiful on Biggar Bank (Walney Island).

Arctium majus Lange. Native. Grows in profusion at Askam-in-Furness and in adjoining woods.

Hieracium boreale Fr. Native. Occurs sparsely in Sowerby Wood at Barrow.

***Cnicus eriophorus** Roth. Native. In a few fields near Roose Railway Station (in Furness).

Tragopogon pratense L. Native. In abundance around the 'Barrow Flax and Jute Works,' and in the adjoining fields.

Campanula latifolia L. Native. Extending from Askam Woods along the route to Stainton Quarries (in Furness).

Echium vulgare L. Native. Two specimens at 'Ramsden Dock,' Barrow.

***Atriplex littoralis** L. 'Denizen, probably.' Waste ground along Walney Channel at Barrow.

Salsola kali L. Native. Western shores of Walney Island.

Rumex conglomeratus Murr. Native. Meadows around Barrow-in-Furness.

***Rumex maritimus** L. Native. Sandy places at North Scales (Walney Island).

Orchis morio L. Native. Abundant in a meadow at North Scales (Walney Island).

Epipactis latifolia All. Native. On the roadside between Broughton-in-Furness and Coniston.

Luzula multiflora Lej. Native. Abundant on the waste ground at 'North End' of Walney Island.

FUNGUS FORAY AT BARNSLEY:
WITH LIST OF SPECIES FOUND.

CHARLES CROSSLAND,

Honorary Secretary, Yorkshire Mycological Committee.

The 134th Meeting of the Yorkshire Naturalists' Union, held at Barnsley, on Saturday, September 18th, and Monday, September 20th, 1897, was devoted solely to the investigation of the fungus flora of that district. There were present, Mr. G. Massee, F.R.M.S., F.L.S., Royal Herbarium, Kew; Rev. W. Fowler, M.A., Liversedge (on the Monday); Messrs. Thos. Birks, Rochdale; A. Clarke, Huddersfield; J. Needham, Hebden Bridge; H. T. Soppitt, C. Bairstow, and C. Crossland, Halifax. Ample and very suitable accommodation in the shape of rooms for examining and exhibiting the fungi collected had been secured beforehand at the Harvey Institute. The committee were fortunate in having the assistance of several members of the Barnsley Society, who did their best, in every way, to make the meeting a success, one of their number, Mr. E. G. Bayford, acting as special secretary for this meeting.

The foray was started on Saturday noon; the afternoon being devoted to the working of Hugsett Wood, under the guidance of Messrs. J. Tomlinson and H. Wade. The wood is of a mixed character, oak predominating; a very suitable wood taken altogether, but in some places the quantity of grass and undergrowth rather told against the appearance of the larger species of fungi. Yet the place proved especially rich in microscopic forms, almost every twig picked up having some interesting form or another upon it; for this branch of the study this wood alone would have supplied work to a single student for a whole season. A peculiarly beautiful but abnormal form of one of the white resupinate Polypores was picked up by Mr. Birks. The fungus had formed itself into a series of little cones varying from $\frac{3}{4}$ to $1\frac{1}{2}$ inches high. The interior of the cones was fleshy, the exterior from bottom to top being an unbroken series of irregular shaped, intricate, simple or compound pores with thin, white, uneven, torn, or tooth-edged dissepiments, which turned brown on drying. It was probably a form of *Polyporus adiposus*. It was intended to visit Cannon Hall Park, but time did not allow, and this part of the programme was reluctantly abandoned.

The visit to Friar Tail and Broomroyd Woods and Stainborough Park proved fairly successful, a corner of wood in the vicinity of Rockley Dam being especially productive. A native, who happened to be about, remarked that the collectors 'swarmed into it like a lot of flies round a treacle pot.' Here *Crucibulum vulgare*, the bird's nest

fungus, was in great profusion. Fine chunks of the liver fungus (*Fistulina hepatica*) were a feature about Stainborough. A pink-spored agaric made out to be *Entoloma angustum* Fr., new to Britain, was collected on this excursion.

The places laid out for Monday were Savin Royd Wood, Woolley Park, and Notton Park Wood. The former turned out to be rather dry, with much grass and bracken, and what species were collected were on fallen branches buried beneath these. *Lenzites betulina*, a species not met with every day, was found on a stump in this wood. Woolley Park, like all other grass lands so far this season, was wholly unproductive, there being quite a dearth of pasture loving species, such as *Entoloma*, *Leptonia*, *Hygrophorus*, etc.; not even a *Peziza*, or a *Pilobolus* on cattle droppings, was to be seen. A few things of special note were come across in Notton Park Wood; amongst them being *Amanita adnata* and *Clitocybe subdecastes*. *Panus farinaceus* Schm. var. *albidotomentosus* (Cooke & Massee) was found in fair quantity on a fallen trunk. In a swamp near Royston, Mr. Needham picked up a rather rare Peziza, *Lachnea erinacea* Schm.

Altogether 201 species, 48 being minute, were collected. Considering the somewhat dry season, this number was as large as could be expected. Though less in quantity than at previous Yorkshire forays, many species were found here that were absent from the others.

The evenings were spent in laying out the specimens, and in identifying such as could not be named in the field at sight. A microscope was provided by the local society. The exhibits were arranged in their proper order on tables in the body of the lecture hall, the genera being denoted by large printed labels prepared by Mr. Clarke. The specific names, with other particulars, such as 'edible' or 'poisonous' were written on slips of paper. Mr. Clarke exhibited a large number of finely prepared unique stereoscopic photographs of fungi.

At the general meeting, presided over by the Rev. W. Fowler, M.A., votes of thanks were passed to Col. W. T. S. Stanhope, C.B., J.P., Mr. Godfrey Wentworth, J.P., and Mr. T. W. Vernon Wentworth, J.P., for permission to investigate their estates, and to the members of the Barnsley Society who acted as guides and who had contributed so much to the success of the whole affair. The officers and committee were re-elected. A vote of condolence was passed to be tendered to the families of the late Bishop of Wakefield, an ex-President of the Union, and the late Mr. Thos. Tate, Hon. Sec. of the Boulder Committee.

It was decided to recommend to the General Committee that next year's (1898) foray be in the neighbourhood of Leeds.

Mr. Massee gave a most interesting, instructive, and racy lecture on 'Edible and Poisonous Fungi,' which was illustrated by upwards of 40 large coloured drawings of species dealt with. The lecturer dwelt on various points bearing on the recognition of species in the field; the best methods of cooking; and on the waste of good tasty morsels through prejudice, neglect, and lack of knowledge.

The efforts put forth to make the meeting generally educational were highly appreciated by the local society and the members' friends, of whom there was a very good attendance on the Monday evening. The weather for collecting purposes was all that could be desired.

The list of species collected is as follows:—

HYMENOMYCETES.

AGARICINEÆ.

Amanita phalloides Fr. Notton.
Amanita mappa Fr. Hugsett; Birdwell; Notton.
Amanita muscaria Linn. Notton Park Wood.
Amanita rubescens Pers. Woolley; Notton.
Amanitopsis vaginata Roze. Birdwell.
Amanitopsis adnata Smith. Notton.
Lepiota procera Scop. Rockley Dam.
Lepiota cristata A. & S. Hugsett; Rockley.
Armillaria mellea Vahl. Hugsett; Stainborough.
Clitocybe cerrussata Fr. Savin Royd.
Clitocybe fumosa Pers. Hugsett.
Clitocybe fragrans Sow. Hugsett; Stainborough.
Clitocybe subdecastes Cook & Massee. Notton.
Laccaria laccata Scop. Birdwell; Hugsett; Stainborough.
Collybia radicata Rehl. Hugsett.
Collybia platyphylla Fr. Hugsett; Stainborough; Notton.
Collybia maculata A. & S. Birdwell; Savin Royd.
Collybia velutipes Fr. Notton.
Collybia tuberosa Bull. Birdwell.
Mycena rugosa Fr. Hugsett; Stainborough.
Mycena galericulata Scop. Hugsett; Stainborough; Notton.
Mycena polygramma Bull. Hugsett; Stainborough.
Mycena alcalina Fr. Hugsett; Stainborough.
Mycena filopes Fr. Hugsett.
Mycena sanguinolenta A. & S. Stainborough; Notton.
Mycena plicosa Fr. Hugsett.

Mycena galopoda Pers. Hugsett.
Mycena epipterygia Scop. Hugsett.
Omphalia umbellifera L. Hugsett.
Omphalia stellata Fr. Birdwell.
Omphalia campanella Batsch. Hugsett.
Omphalia fibula Bull. var. **swartzi.** Hugsett; Birdwell.
Pleurotus ulmarius Bull. Stainborough.
Pleurotus septicus Fr. Hugsett.
Pleurotus chioneus Pers. Rockley.
Pluteus cervinus Schæff. Hugsett; Stainborough.
Pluteus hispidulus Fr. Hugsett.
Entoloma angustum Fr. Stainborough. **New to Britain.**
Entoloma sericellum Fr. Notton.
Leptonia lampropoda Fr. Stainborough.
Leptonia chloropolius Fr. Stainborough.
Nolanea pascua Pers. Stainborough.
Nolanea pisciodora Ces. Stainborough.
Nolanea nigripes Trog. Hugsett.
Claudopus variabilis Pers. Stainborough.
Pholiota erebia F. Hugsett; Stainborough.
Pholiota squarrosa Müll. Near Rockley Dam.
Pholiota mutabilis Schæff. Stainborough.
Inocybe rimosa Bull. Hugsett; Birdwell.
Inocybe destricta Fr. Hugsett.
Inocybe geophylla Sow. Hugsett.
Hebeloma crustuliniformis Bull. var. **minor** Cooke. Stainborough.
Hebeloma nauseosum Cook. Hugsett.
Flammula inopoda Fr. Hugsett.
Flammula sapinea Fr. Birdwell.
Naucoria cerodes Fr. Savin Royd.
Naucoria scolecina Fr. Stainborough.
Naucoria siparia Fr. Hugsett.
Galera tener Schæff. Hugsett.
Galera spartea Fr. Hugsett; Birdwell.
Galera hypnorum Batsch. Birdwell.
Tubaria furfuracea Pers. Hugsett.
Tubaria stagnina Fr. In swamp, Hugsett.

Tubaria crobola Fr. Near Rockley Dam.
Agaricus campestris L. var. **hortensis** Cook. Hugsett.
Agaricus campestris L. var. **sylvicola** Vitt. Stainborough.
Stropharia æruginosa Curt. Hugsett; Woolley.
Stropharia inuncta Fr. Hugsett; Stainborough.
Hypholoma sublateritia Schæff. Hugsett; Stainborough.
Hypholoma eleodes Fr. Hugsett.
Hypholoma fascicularis Huds. Hugsett; Birdwell; Stainborough; Woolley; Notton.
Hypholoma pyrotrichus Holmsk. Hugsett.
Hypholoma velutina Pers. Hugsett.
Psilocybe semilanceata Fr. Hugsett; Birdwell; Notton.
Psilocybe spadicea Fr. Hugsett.
Psilocybe hygrophila Fr. Hugsett.
Psilocybe fœnisecii Pers. Stainborough.
Psathyra corrugis Pers. Birdwell.
Annelaria separata (L.). Birdwell; Stainborough; Notton.
Psathyrella gracilis Fr. Hugsett.
Psathyrella atomata Fr. Hugsett; Stainborough.
Psathyrella disseminata Pers. Hugsett.
Coprinus atramentarius Fr. Hugsett.
Coprinus soboliferus Fr. Hugsett.
Coprinus niveus Fr. Notton.
Coprinus micaceus Fr. Hugsett; Notton.
Coprinus plicatilis Fr. Hugsett.
Paxillus involutus Fr. Birdwell; Stainborough; Notton.
Hygrophorus colemannianus Blox. Stainborough.
Hygrophorus chlorophanus Fr. Stainborough.
Lactarius turpis Fr. Hugsett; Stainborough; Savin Royd.
Lactarius quietus Fr. Hugsett; Stainborough.
Lactarius glyciosmus Fr. Hugsett; Stainborough.
Lactarius theiogalus Fr. Hugsett.
Lactarius subdulcis Fr. Hugsett.
Russula fellea Fr. Hugsett.
Russula emetica Fr. Hugsett.
Marasmius peronatus F. Notton.
Marasmius rotula Fr. Stainborough.
Lentinus tigrinus F. Stairfoot.

Lentinus cochleatus Fr. Stainborough.
Panus farinaceus Schum. var. **albidotomentosus** Cooke and Massee. Notton.
Lenzites betulina L. Savin Royd.

POLYPOREI.

Boletus flavus With. Birdwell.
Boletus piperatus Bull. Notton.
Boletus chrysenteron Fr. Hugsett; Stainborough.
Boletus edulis Bull. Notton.
Boletus laricinus Berk. Birdwell.
Boletus scaber Fr. Hugsett.
Fistulina hepatica Fr. Hugsett; Birdwell; Stainborough.
Polyporus giganteus Fr. Hugsett.
Polyporus sulphureus F. Stainborough; Worsborough Reservoir.
Polyporus dryadeus Fr. Stainborough.
Polyporus betulinus Fr. Hugsett.
Polyporus adustus Fr. Notton.
Polyporus fragilis Fr. Stainborough; Notton.
Polyporus adiposus B. & Br. Stainborough.
Fomes resupinatus (Bolton) Massee. Stainborough.
Fomes annosus (Fr.). Hugsett.
Polystictus versicolor (Fr.). Birdwell; Stainborough; Savin Royd.
Poria terrestris Fr. Stainborough.
Poria blepharistoma B. & Br. Birdwell.
Poria vaporaria Fr. Rockley Dam.

HYDNEI.

Hydnum niveum P. Hugsett.
Phlebia vaga Fr. Hugsett.
Grandinia granulosa Fr. Hugsett.

THELEPHOREI.

Cyphella capula F. Hugsett.
Stereum purpureum P. Hugsett.
Stereum hirsutum Fr. Hugsett; Birdwell; Savin Royd; Notton.
Stereum sanguinolentum Fr. Hugsett.
Stereum rugosum Fr. Hugsett.
Corticium sebaceum (Berk.) Mass. Hugsett.
Corticium sambuci Fr. Birdwell.
Hymenochæte tabacina Liv. Rockley.

CLAVARIEÆ.

Clavaria cristata Pers. Hugsett.
Clavaria rugosa Bull. Stainborough.
Clavaria inequalis L. Rockley.

TREMELLINEI.

Calocera viscosa Fr. Hugsett.
Calocera cornea Fr. Hugsett.
Hirneola auricula-judæ Berk. Birdwell.
Dacramyces deliquescens Duby. Stainborough.

GASTEROMYCETES.

Scleroderma vulgare Fr. Hugsett; Birdwell; Stainborough.
Crucibulum vulgare Tul. Rockley.
Sphærobolus stellatus Tod. Hugsett.
Lycoperdon saccatum Vahl. Birdwell.
Lycoperdon pyriforme Schæff. Hugsett: Birdwell; Stainborough; Savin Royd.
Lycoperdon bovista L. Stainborough.
Ithyphallus impudicus (L.). Hugsett; Stainborough.

ASCOMYCETES.

DISCOMYCETES.

Leotia acicularis L. Hugsett.
Otidea aurantia P. Birdwell; Stainborough.
Humaria granulata (Fckl.). Royston.
Dasyscypha virginea (Batsch.) Fckl. Hugsett.
Dasyscypha nivea (Hedw.) Massee. Hugsett.
Dasyscypha ciliaris (Schm.). Savin Royd.
Dasyscypha hyalina (Pers.). Birdwell.
Dasyscypha subtilissima (Cooke). Savin Royd.
Lachnea dalmeniensis (Cke.). Birdwell; Hugsett.
Lachnea erinacea (Schw.). On wood, Royston.
Cyathicula coronata (Bull.). Stainborough.
Helotium imberbe (Bull.). Rockley.
Helotium uliginosum (Fr.). Royston.
Helotium sublenticulare Fr. Royston.
Helotium cyathoideum (Bull.). Royston.
Helotium herbarum (Pers.). Rockley.
Mollisia cinerea (Batsch.). Birdwell.
Mollisia atrata (Pers.). Hugsett.
Mollisia effugiens (Rob.). Royston.
Pseudopeziza benesueda (Tul.). Birdwell.

Ryparobius argenteus (Tul.). Birdwell.
Ascophanus equinus Müll. Stainborough.
Ascobolus furfuraceus Pers. Royston.
Ascobolus crouani Boud. Rockley.
Ascobolus viridis Currey. Hugsett.
Coryne sarcoides. Savin Royd.
Orbilia vinosa (Abb. & Schw.). Birdwell.
Bulgaria polymorpha (Oeder). Stainborough.

PYRENOMYCETES.

Cordyceps militaris Fr. Hugsett.
Hypocrea rufa Fr. Royston.
Nectria cinnabarina Fr. Hugsett.
Nectria coccinea Fr. Rockley.
Xylaria polymorpha Grev. Hugsett.
Xylaria hypoxylon Grev. Hugsett; Birdwell; Stainborough.
Eutypa lata Tul. Stainborough.
Sphæria ovina Pers. Hugsett.
Sphæria spermoides Hoffm. Birdwell.
Sphæria pulveracea Ehr. Rockley.

PERISPORACEA.

Erysiphe martii Lk. Stainborough.

USTILAGINEÆ.

Sphacelotheca hydropiperis (Schum.). Stainborough.

PHYCOMYCETES.

Pilobolus crystallinus Tode. Royston; Stainborough; Woolley.
Pilobolus roridus Pers. Stainborough.

HYPHOMYCETES.

Ramularia calcea Ces. Stainborough.
Bispora monilioides Cord. Stainborough.
Stilbum tomentosum Schr. Hugsett.
Ægerita candida Pers. Hugsett.

MYXOGASTRES.

Stemonitis fusca Rost. Rockley.
Lycogala epidendron Rost. Hugsett.
Arcyria panicea Rost. Hugsett; Notton.
Trichia chrysosperma Rost. Hugsett.
Chondrioderma difforme Rost. Birdwell.
Didymium squamulosom Fr. Rockley.
Physarum carlylei Mass. Savin Royd.
Tilmadoche nutans (Pers.). Hugsett; Birdwell.

NEUROPTERA-PLANIPENNIA & TRICHOPTERA OBSERVED NEAR TADCASTER.

FRANCIS G. BINNIE.

[The following notes have been in my possession since the year 1880, and it seems useful to print them, especially as they add three species to Mr. Porritt's 'Preliminary List of the Neuroptera and Trichoptera of Yorkshire' published in this journal for April 1897, pp. 115-126. The three additional species are--

Sisyra dalii,
Lepidostoma hirtum,
Agapetus comatus,

which bring the total number recorded for Yorkshire from 138 to 141, out of 283 British species, or almost exactly half.

I am indebted to Mr. G. T. Porritt, F.L.S., for looking over the proof, and for the note which is printed at the foot.—W.D.R.]

Order—NEUROPTERA.

PLANIPENNIA.

The nomenclature followed is that of the 'Catalogue of British Neuroptera' by Mr. McLachlan, and published by the Entomological Society of London, 1870. For the names of the species I am indebted to my friend Mr. J. J. King, of Glasgow.

Fam. *OSMYLIDÆ.*

Sisyra fuscata Fab. Boston Spa.
Sisyra dalii McL. Boston Spa; Tadcaster.

Fam. *HEMEROBIIDÆ.*

Hemerobius atrifrons McL. Tadcaster.
Hemerobius nervosus F. Tadcaster.

Fam. *CHRYSOPIDÆ.*

Chrysopa alba L. Tadcaster.

Fam. *PANORPIDÆ.*

Panorpa communis L. Tadcaster.
Panorpa germanica L. Tadcaster.

TRICHOPTERA.

Since the publication of McLachlan's 'Trichoptera Britannica' in 1865, the nomenclature of our British Caddisflies, both of genera and species, has undergone various changes, occasionally somewhat perplexing, as, for example, in the genus *Mystacides*.

I have adopted here that of the more recent 'Monographic Revision and Synopsis of the Trichoptera of the European Fauna' by the same author, and now [1880] nearly completed. For convenient reference, however, I add within parentheses the specific name (when different) used in the 'Catalogue of British Neuroptera' (1870). The generic changes which affect the present list are the following:—

Micropterpna has been created for those species of the genus *Stenophylax* with the basal joint of anterior tarsi of male short.

Of the three species of *Mormonia* in the 'Trichoptera Britannica,' *basalis* is separated in the 'Catalogue' as *Lasiocephala*, and in the 'Monographic Revision' the remaining two species are allocated to new genera *Lepidostoma* and *Crunoecia* respectively, the name *Mormonia* disappearing from the generic roll altogether. *Œcetis* receives *Setodes*, section A; and section B of *Polycentropus* also takes generic rank as *Holocentropus*.

After each species the character of the habitat of the larva is indicated. I have not succeeded in capturing any representatives of the families Phryganeidæ and Hydroptilidæ.

Fam. *LIMNOPHILIDÆ*.

Glyphotælius pellucidus Oliv. Still waters. Tadcaster.

Limnophilus rhombicus L. Still waters. Tadcaster.

Limnophilus lunatus Curt. Still waters. Near Newton Kyme; Stutton. Common.

Limnophilus griseus L. Still waters. Tadcaster.

Limnophilus auricula Curt. Shallow running waters. Near Newton Kyme.

Limnophilus vittatus F. Standing waters, perhaps also streams. Tadcaster.

Stenophylax stellatus Steph. Streams. A dead male individual in a spider's web at Boston Spa.

Micropterpna sequax McL. (**striatus**). Clear running waters. Occurs very sparingly in Britain. Near Newton Kyme.

Fam. *SERICOSTOMATIDÆ*.

Goera pilosa F. (**flavipes**). Rivers and streams either turbid or clear. River Wharfe at Boston Spa and Tadcaster.

Lepidostoma hirtum F. Swift clear streams. Tadcaster.

Fam. *LEPTOCERIDÆ*.

Leptocerus cinereus Curt. Large rivers. River Wharfe at Boston Spa and Tadcaster, common.

Leptocerus albifrons L. Clear streams. River Wharfe at Tadcaster and Boston Spa.

Mystacides azurea L. (**nigra**). Running waters. River Wharfe at Boston Spa and Tadcaster.

Mystacides nigra L. (**atra**). Standing and slowly-running waters. Stutton.

Œcetis notata Ramb. Streams. River Wharfe at Tadcaster, abundant. The only other recorded locality in Britain is Weybridge, in the south of England. It has been added since the 'Catalogue' was published.

Œcetis testacea Curt. Streams.. Abundant, with the preceding, by river Wharfe at Tadcaster; Boston Spa.

Fam. *HYDROPSYCHIDÆ.*

Polycentropus flavomaculatus Pict. Shallow rapid streams. River Wharfe at Boston Spa.

Holocentropus picicornis Steph. Clear weedy pools and lakes. Stutton.

Fam. *RHYACOPHILIDÆ.*

Rhyacophila dorsalis Curt. Swift clear streams. Tadcaster.

Agapetus comatus Pict. Swift rivers. Tadcaster.

[The fact of Mr. Binnie's notes having been written in 1880 no doubt accounts for the statement that *Micropterpna sequax* 'occurs very sparingly in Britain.' Since then it has proved to be a very common species, and seems to *abound* all over our county. I find it almost wherever I collect, including the stream and ponds in my own grounds, and it is pretty sure to be one of the species in the various selections sent to me from time to time by friends who secure for me such specimens as they casually meet with when working their own particular groups of insects. Of *Œcetis notata* I have specimens from Worcester (J. E. Fletcher) and Lucan (J. J. F. X. King). Mr. McLachlan, too, recently told me he took it years ago in the Thames.—G.T.P.]

NOTE—HEPATICÆ.

A Second West Riding Locality for Jubula hutchinsiæ.—The 'Naturalist' for April last contained an interesting article by Mr. M. B. Slater, announcing that this rare plant, hitherto known only as an Irish and West Coast species, had been gathered by Mr. James Needham at Hebden Bridge. I am now able to give another station for it, for I have this month had the good fortune to find it growing luxuriantly in the beautiful glen known as Ravensgill, Pateley Bridge. Although as a matter of fact it would be next to impossible to be mistaken in its identity with Hooker's beautiful drawing before one, I nevertheless, as a beginner in the study of Hepatics, thought it desirable to submit a specimen to Mr. Slater, and he has very kindly confirmed the determination.—L. J. Cocks, Harrogate. Oct. 26th, 1897.

NOTES—COLEOPTERA.

Acanthocinus ædilis at Doncaster.—I had a fine living specimen of this beetle given me to-day by a friend. It alighted on his hand while at work.—A. PATERSON, 45, Cemetery Road, Doncaster, Sept. 16th, 1897.

Recent Occurrence of Rhizotrogus solstitialis in Yorkshire.—A short time ago, Mr. G. C. Dennis, of York, handed to me a beetle which he took on the wing at Malton, in July of the present year. It proved to be *Rhizotrogus solstitialis* L., a well-known insect in some of the southern counties of England, but most unusual further north. An authentic instance of the recent occurrence of the species in Yorkshire is worthy of note, the locality being so far from its normal area of distribution in the British Islands.—M. LAWSON THOMPSON, Saltburn-by-the Sea, October 13th, 1897.

NOTES—ORNITHOLOGY.

Pectoral Sandpiper near Spurn.—A very fine adult male of *Tringa maculata* Vieill, in summer plumage, was shot by a coastguard on September 28th at Easington, Holderness, from a pond on the fitties at the Humber side. It was alone at the time. This bird was seen an hour after it was shot by Mr. Wm. Eagle Clarke, Mr. Howard Saunders, and myself. It has been set up by Mr. Philip Loten, of Easington, and presented to the Edinburgh Museum by Mr. Clarke. The Pectoral Sandpiper figured in Lord Lilford's 'Illustrations of British Birds' was a Yorkshire specimen shot near the same place on Oct. 2nd, 1888. This American Sandpiper is in all probability a more frequent visitor to this country in the autumn than is generally supposed, easily escaping observation when in company with Dunlin or other small waders.—JOHN CORDEAUX, Great Cotes House, R.S.O., Lincoln, 23rd Oct., 1897.

Kestrel and Long-eared Owl breeding in close proximity to each other.—Whilst in a wood on April 29th last, in the neighbourhood of Strensall Common, I saw a Kestrel (*Tinnunculus tinnunculus*) leave a nest at the top of a large Scotch Fir tree, and on climbing to it I found it was a deserted nest of the Magpie (*Pica pica*) in a very good state of preservation, probably having been built the previous year, the dome being complete and the present occupier having ingress and egress at the side in the usual Magpie fashion. The nest contained four beautiful Kestrel's eggs. In an adjoining tree, also a Scotch Fir, there was another nest not more than three yards from the Kestrel's. When up at the latter I could not see into the other nest through some dense branches being in the way, but seeing a lot of bird excrement on the branches below I was tempted to climb to that nest also, to satisfy my curiosity, when I found therein three young Long-eared Owls (*Asio otus*) and one addled egg. Two of the young ones appeared to be about a fortnight older than the other.—E. G. POTTER, 14, Bootham Crescent, York, Oct. 11th, 1897.

NOTE—FUNGI.

The British Mycological Society at Sherwood Forest.—The first annual meeting of this society was held at Worksop, Notts, from September 13th to 17th last, excursions being made each day to some portion of the Sherwood Forest district. Among the places visited were Welbeck Park, Budby Carr and Thoresby Park, Clumber Park, and the Birklands. Many interesting Fungi were observed, including a considerable number not hitherto recorded for Nottinghamshire. Among them was an Entoloma (*E. hirtophyllum*), new to the British Flora, which in many points resembles a small form of *E. rhodopolium*, but is at once characterised by the hirsute margin of the gills, which may be observed even by the naked eye. It was discovered in Budby Carr. Another interesting species found was *Amanita recutita*, which occurred in some abundance in Clumber Park and the Birklands. According to Mr. Rea this is not recorded in any work on British Fungi, although it has been known to Dr. C. B. Plowright as such for many years. It 'belongs to the Phalloideæ group of Amanita, but is characterised by the dry pileus, silky stem, and distant ring.'

LATHYRUS NISSOLIA AND OTHER RARE PLANTS AT SANDAL, NEAR DONCASTER.

H. H. CORBETT.

About two and a half miles from Doncaster, on the Thorne Road, are the Sandal Brickfields. On August 3rd, I paid a visit to them with Mr. F. Arnold Lees and Mr. Pickard, our object being the confirmation or otherwise of my note ('Naturalist,' August 1897) on the occurrence of *Lathyrus nissolia* in this locality. After our visit, Mr. Lees asked me to write a short account of what we had seen, for the 'Naturalist.' This I proceed to do.

Geologically, the isolated patch of clay forming the brickfields is interesting. The whole way from Doncaster the soil consists of post-glacial gravels, with Bunter sandstone below. But here the Bunter appears to have been locally denuded at some pre-glacial time, while during the glacial period when the Scandinavian glacier blocked up the Humber and consequently the Don, the hollow previously formed was filled with water which gradually deposited a fine bluish laminated clay, showing no trace of organic remains, nor containing any pebbles or boulders. It is to all appearance a warp clay, but is situated far above the true warp lands, being about forty feet above sea level. This clay has been worked for the manufacture of bricks since.

Latterly, however, the brick-making has not paid, and the ground has been pretty much left to nature. The irregular surface left in the old workings provides suitable situations for a very varied florula, the majority of which have evidently come since the clay was dug out. Wind dispersal will account for many species; others probably have been carried by waterfowl. But all these species are well-known West Riding plants with one exception, *Lathyrus nissolia*. How did this plant get there? Wind dispersal is out of the question. The seed is not such as would pass undigested through the alimentary canal of a bird. It is not a plant of cultivation, nor is it likely to be introduced as a cornfield casual. But here it is flourishing and apparently native far from its hitherto known localities. Can the seeds have lain dormant for countless years until the accumulated clay was artificially removed, giving them a chance of germinating? Is the plant a relic of a pre-glacial flora? These questions, easy to ask, but very difficult to answer, suggest a possible, but in my own opinion, a barely probable solution.

If the plant has been an integer of the West Riding flora continuously and independently of the removal of the clay, it is difficult

to conceive how it should have escaped notice. Tofield worked the Doncaster neighbourhood very thoroughly, and surely had *L. nissolia* been here then he would have found it. Since his day, many good botanists have worked here, but no record of *L. nissolia* is to be found from any of them.

Among other interesting plants noted on August 3rd, were *Lycopus europæus*, *Sparganium simplex*, *Rosa tomentosa*, *Utricularia vulgaris*, *Myriophyllum alterniflorum*, *Helosciadum inundatum*, *Lotus uliginosus*, *Nepeta cataria*, *Œnanthe fistulosa*, *Epilobium palustre*, *Senecio erucifolius*, *Chara fœtida*, and two introduced aliens, *Medicago falcata* and *Sisymbrium austriacum*.

NOTES—MAMMALIA.

Squirrel in Upper Wharfedale.—On the 2nd of November, about midday, I observed *Sciurus vulgaris* running on the road between Arncliffe and Hawkswick. As I approached nearer it ran along the wall-top and disappeared among the trees of a plantation. As I am not aware that this interesting little animal has ever been recorded in this district—at 700 ft. above the sea—I have ventured to send in this note to you.—W. A. SHUFFREY, Arncliffe Vicarage, November 4th, 1897.

Great Increase of Arvicola agrestis at York.—In the York Nurseries during last winter and in early spring, much havoc was made by these small pests, especially among the hardy carnations. In some cases whole beds of these were cut down and the tops laid in heaps, whilst everywhere the runs of *Arvicola agrestis* were to be seen. Comparatively few of the Long-tailed Field Mouse (*Mus sylvaticus*) were caught; in proportion, perhaps one in a dozen to the Field Vole. Recently in an adjoining field vast numbers of nests of the *Arvicola agrestis* were discovered when the grass was cut, which bodes ill for the coming winter, especially if it should happen to be a severe one. During September a doe *Arvicola agrestis* of exceptional size was brought in from the Nurseries, measuring six inches in total length from nose tip to tail tip, all but an eighth, and four and three-quarter inches without the tail. According to Bell, 'British Quadrupeds,' the average measurements are as follows:—Length of head and body, 4 inches 1 line; length of tail, 1 inch $3\frac{1}{2}$ lines. At Harrogate, the season's catches go to prove that the preponderance of number goes with the Long-tailed Field Mouse (*Mus sylvaticus*) by something like ten to one.—J. BACKHOUSE, Daleside, Harrogate, Oct. 16th, 1897.

NOTE—ARACHNIDA.

Epeira cucurbitina in Northumberland.—While sitting on the rocks in the bed of the S. Tyne, nearly opposite Featherstone Castle, in Northumberland, on August 1st, 1897, I chanced to look at a small willow growing within one of the rocky crevices, and there, suspended head downwards in the centre of its web, with legs outstretched to grasp the threads, and half concealed by leaves, I espied the greenish-yellow limbs and body, and the characteristic abdominal red patch of *Epeira cucurbitina* Bl. It proved to be a female. Further search, however, failed to discover another specimen. On referring to the catalogue of the spiders of Northumberland and Durham, contained in the 'Natural History Transactions of Northumberland, Durham, and Newcastle-upon-Tyne,' vol. 13, part 1, I learn that this *Epeira* has only before been observed in the county in the neighbourhood of Wooler, by Mr. Hardy, more than twenty years ago.—WM. FALCONER, 20, Lewisham Road, Slaithwaite, Huddersfield, Oct. 18th, 1897.

Naturalist,

LINCOLNSHIRE NATURALISTS AT FRAMPTON AND WYBERTON FITTIES.

Rev. E. ADRIAN WOODRUFFE-PEACOCK, L.Th., F.L.S., F.G.S.,
Vicar of Cadney, Brigg; General and Botanical Secretary Lincolnshire Naturalists' Union.

The fifteenth field meeting of the Union was held in the Boston neighbourhood in Div. 17 North, on Thursday, August 26th, and passed off most successfully. At the appointed time most of the members mustered at Boston Station, amongst those present being Mr. John Cordeaux, M.B.O.U., F.R.G.S., of Great Cotes; Mr. F. M. Burton, F.L.S., F.G.S., of Gainsborough; Mr. H. Preston, F.G.S., of Grantham; Dr. Howard, of Sibsey; Rev. Sumner C. Wood, of Ponton; Mr. W. H. Wheeler and Mr. G. S. W. Jebb, of Boston; Rev. S. Staffurth, of Frieston; Mr. W. Lane-Claypon and Miss Lane-Claypon, of Tytton Hall; Mr. S. Cresswell, Mr. B. Crow and Mr. T. Gelsthorp, of Louth; Mr. T. J. H. Brogden, of Spalding; Miss Woolward, of Belton; Mr. G. Parker and Mr. J. J. Cresswell, A.R.I.B.A., of Grimsby; Rev. A. Thornley, F.L.S., F.E.S., of Leverton; Mr. J. E. Mason, of Lincoln; Col. Moore, C.B., of Frampton; Mr. Hett, of Brigg; the Organizing Secretary, the Rev. E. A. Woodruffe-Peacock, of Cadney; and the Assistant Secretary, Mr. R. W. Goulding, of Louth. Six of these were picked up en route.

The members who arrived by the earlier trains spent the interval in taking a view of Boston Parish Church, which Leland long ago described as 'the best and fayrest of all Lincolnshire,' and about which William Cobbett justly observed that it was 'the great pride and glory of the Bostonians.' Mr. John Cresswell's architectural knowledge was very serviceable to his companions.

The route lay through the well-timbered district of Wyberton and Frampton, a halt being made at the latter place in order to take up Col. Moore, and also to enable the party to see the remarkable inscription and grotesque head which form part of the original work in the buttress at the south-east corner of the south transept of the Parish Church.

The drive was then resumed, the old Roman bank (now far inland) was crossed, and the party dismounted at Kirton marsh, walking along the foreshore to Bleak House on the Wyberton marsh, a distance of about four miles. The land between the Roman bank and the present embankment has been enclosed within the last twenty-five or thirty years, and interesting accounts of its reclamation were given by Mr. W. H. Wheeler, M.Inst.C.E., who contributed an able article on the Fens to the 1892 edition of

White's Lincolnshire. Alluvium is brought down the rivers in times of flood, sand and coarser silt being deposited first; when the accretion has risen to the height of neap tides, then argillaceous matter is deposited on it, but only when the water is comparatively still. The warp so formed speedily becomes covered with samphire and other marine vegetation, the surface gradually rising.

Every one interested in the Fenland should study Mr. Wheeler's last work, the second edition of the 'History of the Fens of South Lincolnshire.' Geologists are specially recommended to study his paper on 'Littoral Drift,' which explains the formation of the Fenland on slightly new lines.

Mr. F. M. Burton writes that the geology of the district traversed, so far as field-work is concerned, proved, as is so often the case in Lincolnshire, devoid of practical interest, the strata being entirely covered over with fen deposits; but what we know of the underlying beds points to matter of considerable interest. In an attempt to find water at Boston some years ago by a boring which was carried to a depth of nearly 600 feet, after the fen beds and the boulder clay below them were passed through, the Kimmeridge and Oxford clays were reached. This shows that the whole of the chalk series forming the high wolds to the north-west, which once covered the district, had been swept away; for when the chalk was deposited in the deep cretaceous sea, England lay beneath it. And further, as the boulder clay lies directly on the Kimmeridge and Oxford clays, we have here a certain proof that, in this part of Lincolnshire at all events, this enormous denudation must have preceded the glacial era, or at all events, such part of it as was still in existence when the boulder clay was deposited.

Very little work appears to have been done with regard to the natural history of this marsh land, but a good beginning is being made now by several active workers; Miss Lane-Claypon, Mr. J. Lane-Claypon, who is busy with the Lepidoptera, and Mr. Brogden, of Spalding, amongst the birds.

Mr. John Cordeaux, M.B.O.U., F.R.G.S., writes that the number of birds seen was small; this was probably from members of the Union (through want of time) keeping the sea-bank and not separating to explore the coast and sea-edge of the fitties, near low water-mark, where wading birds mostly congregate. Yet it turned out a charming walk for the naturalists. In the distance large numbers of Gulls were beating to and fro over the foreshore—a solitary Heron was slowly flapping seaward. We found their footprints everywhere in the creeks. Some Lapwings were feeding on the fitties—a couple of Ducks were on the wing. The far-off 'chee-weet' of the

Redshank and wheepling of the restless Whaups were sounds which, subdued by distance, eminently fitted in with the unique character of Lincolnshire coast scenery. The commonest small bird was the Meadow Pipit. I was told by Mr. Brogden, of Spalding, that if we wanted to see birds we should have followed the south side of Fossdike Wash, a locality which they seem much to prefer. The Common Sandpiper, now on its southern migration, was flitting across an inland creek; Dunlin also were both heard and seen. The two most interesting species were a Green Sandpiper and half-a-dozen Curlew Sandpipers, new arrivals, in immature plumage; these latter on a little mud bank in an old creek. Strikingly tame, their acquaintance with man and his ways not having commenced, they probably mistook the deeply interested group of naturalists for a herd of reindeer. Here were young birds of the year, on August 26th, on our coast, yet the place of their nesting is unknown to science, so very far off is it and inaccessible, somewhere, we have reason to think, in the bleak, treeless tundra lands of eastern Arctic Asia. The Green Sandpiper has undoubtedly nested in England, although proofs of the actual finding of the nest are yet wanting. The eggs, it is now known, are deposited in the old nest of some other bird in a tree. It is not an uncommon bird on our coast fittie lands in the latter part of July and August. Ornithologically this district is second to none in Great Britain, and its possibilities are practically unlimited in the summer of rare visitors from other lands on migration. Indeed, there is no reason why careful and regular observation might not give equally good results as those which have already been obtained on the coast at Tetney Haven and at the Spurn. It is the absence of houses, and its loneliness and natural features which mark it as one specially attractive to the ornithologist, as well as its geographical position as regards the lines of immigration followed by birds in the autumn.

> Miles and miles and miles of desolation,
> Leagues on leagues without a change;
> Sign or token of some eldest nation
> Here would make the strange land not so strange,
> Time forgotten—yea, since Time's creation
> Seem these borders where the sea-birds range.

Turning inland when we reach the Witham the view is very striking, the broad river wandering through the level which itself has helped to lay down in the course of ages. There on the outward rim of the plain stands the glorious historic tower of St. Botolph, dominating the fen-land. The landscape strikes us as being very suggestive of the approach to Antwerp from the sea.

Mr. Jas. Eardley Mason and the Rev. A. Thornley, M.A., F.L.S., represented the Entomological section, and got on the Kirton Marsh by 9 a.m., in a fog that gave promise of a fine day, and was not falsified in the result. The locality will repay a much more careful and prolonged investigation. The Hemiptera-Heteroptera met with were not remarkable, but one would have expected more Saldæ. A better search would probably reveal other species. The list is:—

Miris calcaratus Fall.
Megaloceræa erratica L. Abundant.
Megaloceræa longicornis Fall.
Megaloceræa ruficornis Fall. Abundant.
Lygus pratensis Fab.
Nabis major Costa.
Nabis ferus L.
Nabis rugosus L.
Salda littoralis L.
Salda pallipes Fab.

The following is a shortened list of the less common species of Coleoptera, which altogether amounted to fifty:—

Harpalus puncticollis. Abundant in seed heads of Daucus carota.
Bembidium varium.
Bembidium normannum.
Bembidium minimum.
Pogonus chalceus. Perhaps the most abundant beetle on the foreshore.
Dichirotrichus obsoletus. A few.
Dichirotrichus pubescens. Abundant.
Cafius xantholoma.
Oxytelus inustus.
Quedius semiæneus.
Micraspis sedecimpunctatus. A few.
Phalacrus corruscus. Common on sea-bank.
Aphodius pusillus.
Miccotrogus picirostris.
Psylliodes chrysocephala.
Anthicus antherinus.

And many common species.

Of Diptera were taken:—

Syrphus balteatus.
Syrphus luniger.
Syrphus ribesii.
Syrphus latifasciatus.
Catabomba pyrastri.
Sphærophoria scriptus.
Eumerus lunulatus.
Syritta pipiens.
Eristalis æneus.
Eristalis pertinax.
Eristalis arbustorum.
Rhingia rostrata.

And numerous other species not yet determined.

Of Hymenoptera most of the common species of *Bombus* were observed, but especially *B. lapidarius*. Common species of *Halictus*; *H. cylindricus*, male, and *H. rubicundus*, male.

Of Neuroptera was noted *Panorpa communis*.

Of Orthoptera the common Grasshoppers *Stenobothrus viridulus* and *S. bicolor* were abundant, particularly the first, amongst the long grass of the sea-bank.

The principal Butterflies seen were *Pyrarge megæra*, *Vanessa Io*, *V. urtica*, *Lycæna icarus*, and 'The Cabbage White.' In this connection we publish a list of about two hundred species of Lepidoptera which Mr. J. C. Lane-Claypon has taken in the parish of Wyberton, a very acceptable instalment towards a knowledge of the entomological fauna of District 17 North.

Mr. F. M. Burton, F.L.S., F.G.S., reports on the Conchology:—The district in question proved somewhat barren with regard to molluscs. This was partly owing to the nature of the ground passed over—a wide, flat, salt marsh, covered occasionally by the sea; but it was also due to the distance traversed and the want of time allowed for search. This last is an evil which, I often think, we are too liable to fall into. It was certainly the case at our first meeting this year at Scotton Common; and, as I had the arrangements to make for that excursion myself, I must take the blame. Had we stayed on the Common all the time, we could have found more than enough to have occupied the attention of the members present, specialists or not; as it is, however, the thorough investigation of this most interesting locality remains still to be carried out.

The only point of any conchological interest met with at Boston was the finding of the common cockle (*Cardium edule*) and *Palu destrina ventrosa*, both together, in the remains of an old creek on the land side of the outer sea-bank—a bank which was raised, I understand, some 25 years ago—called locally, Sandholme Creek. There is apparently no access from the sea into this creek, but the water in it, notwithstanding the lapse of time, is not yet dried up. The cockles are attenuated in texture, small and globular—a sign of their having lived for a long time in brackish water—and their open valves, lying at the sides, and numerous footprints of small waders about, showed one of the uses they are put to. There were many shrimps also, of more than one kind, in the water; they came up in fact at every lift of the dredge, and, had time permitted, a careful search in this old cut-off creek would no doubt have resulted in matter of much interest.

Colonel Moore, of Frampton Hall, who joined the party, presented a series of the shells of the Common Mussel (*Mytilus edulis*) from the spat to two years old, taken from Boston Deeps. The increase in growth of this valuable mollusc from year to year is very interesting, and it is satisfactory to find that it is being protected by the Fishery Board in this district.

Miss Lane-Claypon has not only worked the Botany of the Boston neighbourhood very fully, but has made most beautiful water coloured sketches of most of our local species. She put a *Florula* of the neighbourhood into the hands of the Organizing Secretary; the species were thoroughly typical of the neighbourhood, and have been recorded over and over again in the 'Naturalist' and elsewhere. The only two good finds of the day were *Festuca arundinacea* Screb., badly ergoted, which makes *F. elatior* L., of which till lately it was reckoned a variety, so dangerous in the pastures of breeding farms,

and *Salicornia herbacea* L. var. *procumbens* Mag., never recorded before for South Lincs., 53. The fertility of the soil of the fenland is wonderful. Beech, Ash, and Oak grow in this favoured district as large in 50 years as they would in 150 on less favoured soils such as chalk, limestone, and clay. They are 'soft' and 'sappy' in consequence, and are of little value to the timber merchant though so pleasing on the landscape.

Bleak House, where the brakes were in readiness, was reached about 4.30. The party then proceeded to Tytton Hall, Mr. and Mrs. Lane-Claypon very kindly entertaining them to high tea.

Mr. John Cordeaux, a vice-president of the Union, occupied the chair, and after tea moved a cordial vote of thanks to the host and hostess for their generous hospitality, making special acknowledgment of the admirable way in which Miss Lane-Claypon had organised the meeting.

Mr. F. M. Burton, another vice-president, seconded, and apologised for the absence of Canon Fowler, who was in the Lake District.

Mr. S. Cresswell supported, adding a few apposite remarks in the name of the Louth Society. Before putting the vote the Chairman said that he had not thought it necessary to make special mention of the Louth Society, as he always considered that Society an integral part of the Union, and Mr. Burton added that the Louth Society, having regard to its connection with the Union, might certainly say 'Quorum pars magna fui.'

Mr. Lane-Claypon acknowledged the vote, and said that it was entirely due to his daughter that the meeting had been held at Wyberton. He was sorry that he had not been able to add to the scientific researches of the day, for he was only a naturalist by deputy, but he was very glad to have enhanced their pleasure in any way. It had given him great satisfaction to welcome the Union at Tytton Hall, and he hoped that this would not be their last visit to the neighbourhood.

Sectional reports of the day's proceedings were then given.

Before leaving Tytton Hall, members had the pleasure of seeing and admiring some of Miss Woolward's paintings of flowers, and of hastily looking through her magnificent monograph on Masdevallia, a genus of Orchids found in Central and South America.

NOTES AND NEWS.

The papers on Natural History in connection with the Hancock Memorial Prize were adjudicated upon in the middle of October by Canon Tristram and Canon Norman. The prize was awarded to Mr. B. W. Ellison, of Newcastle-on-Tyne. Mr. Ellison was followed so closely by Miss E. Spencer Hick, also of Newcastle-on-Tyne, that a special second prize was awarded to her by Canon Norman.

LIST OF LEPIDOPTERA TAKEN AT WYBERTON, NEAR BOSTON.

J. C. LANE-CLAYPON.

Tytton Hall, near Boston, Lincolnshire.

THE species enumerated below have nearly all occurred to me in the parish of Wyberton, which lies south of Boston, in District 17 North of the Lincolnshire Naturalists' Union Map. It will be of interest to publish this list at the same time as the report of the Lincolnshire Naturalists' Union excursion to the district.

A few notes about the physical features of the parish will be of interest. The parish from end to end is absolutely flat; it is practically entirely composed of fields (chiefly grass land), separated from each other by hedges or ditches. The district therefore is eminently unsuited for day collecting, indeed, the only locality worth visiting is the old Roman bank near the Witham, but 'sugar' and 'light' usually yield fair results. There are no woods, but the trees are scattered fairly evenly though somewhat scantily over the parish. The commonest species indigenous to the district are elm, horse-chestnut, and ash, the first mentioned of which is the best for pupa digging. The soil is for the most part heavy clay; but near the river it becomes silt. The absence of some species from the list which might otherwise be expected to appear in it may be accounted for by the fact that the vacation months of August and September are the only ones in which I have the opportunity for systematic collecting.

Papilio machaon. I have seen two specimens taken on the Witham bank near Boston, about 1888.

Pieris brassicæ. Abundant.

Pieris rapæ. Abundant.

Pieris napi. Abundant.

Anthocharis cardamines. Common.

Colias edusa. Wyberton. One seen September 1892.

Gonopteryx rhamni. Wyberton. Rare.

Vanessa polychloros. Two in 1888. Wyberton.

Vanessa urticæ.

Vanessa io. Wyberton.

Vanessa atalanta. Wyberton.

Vanessa cardui. Wyberton Rare latterly.

Pararge megæra. Wyberton. Abundant.
Epinephile janira.
Epinephile tithonus.
Cœnonympha pamphilus. Wyberton. Rare.
Polyommatus phlœas. Wyberton. Common.
Lycæna icarus. Wyberton. Common.
Hesperia sylvanus. Wyberton. Local. Common near the Witham.
Acherontia atropos. Appears to be common near Boston. Several larvæ in August 1896.
Sphinx ligustri. Wyberton. Occurs.
Chœrocampa elpenor. Wyberton. Occurs.
Smerinthus ocellatus. Wyberton. One in 1892.
Smerinthus populi. Wyberton. Common.
Smerinthus tiliæ. Wyberton. Common.
Macroglossa stellatarum. Occurs occasionally near Boston.
Nola cucullatella. Wyberton.
Nola cristulalis. Wyberton.
Lithosia stramineola. Wyberton. At light.
Lithosia complanula. Wyberton. At light.
Euchelia jacobææ. Wyberton, etc.
Arctia caja. Boston. Occurs commonly.
Arctia mendica. Wyberton. At light.
Arctia lubricipeda. Wyberton. Absolutely swarms.
Arctia menthastri. Wyberton. Absolutely swarms.
Hepialus humuli. Wyberton. Common.
Hepialus sylvinus. Occurs.
Hepialus velleda. Wyberton.
Hepialus lupulinus. Very abundant.
Cossus ligniperda. Common round Boston.
Zeuzera æsculi. Two found some years ago in Wyberton.
Liparis auriflua. Wyberton. Absolutely swarms.
Orgyia antiqua. Wyberton.
Trichiura cratægi. Wyberton. One male at light, Aug. 1897.
Bombyx neustria. Wyberton. Common.
Bombyx quercus. Boston. Rare.
Odonestis potatoria. Wyberton. Formerly common.
Cilix spinula. Wyberton. Very common.

Ptilodontis palpina. Wyberton. One at light, July 1896.
Notodonta camelina. Wyberton. Several at light.
Pygæra bucephala. Wyberton. Very abundant some years.
Acronycta psi. Wyberton. Common.
Diloba cæruleocephala. Wyberton. Two at light.
Leucania lithargyria. Wyberton. Common.
Leucania comma. Wyberton. Common.
Leucania impura. Wyberton. Common.
Leucania pallens. Wyberton. Common.
Calamia phragmitidis. Wyberton. Fairly common at light.
Tapinostola fulva. Wyberton. Very common.
Nonagria lutosa. Wyberton. Not common.
Gortyna flavago. Wyberton. Common at light.
Hydræcia nictitans. Wyberton. Two, August 1896.
Hydræcia micacea. Wyberton. Occasionally at light.
Axylia putris. Wyberton. One at light, June 1895.
Xylophasia rurea. Wyberton. Common.
Xylophasia lithoxylea. Wyberton. Common.
Xylophasia sublustris. Wyberton. One, 1896.
Xylophasia polyodon. Wyberton. Very abundant.
Heliophobus popularis. Wyberton. Very abundant at light.
Charæas graminis. Wyberton. One at light, 1895.
Cerigo cytherea. Wyberton. Two at light.
Luperina testacea. Wyberton. One of our commonest species.
Mamestra brassicæ. Wyberton. At light, very common.
Mamestra persicariæ. Wyberton. One specimen.
Apamea basilinea. Wyberton. Common.
Apamea gemina. Wyberton. Rare.
Apamea oculea. Wyberton. Abundant.
Miana striligis. Wyberton. Not common.
Miana fasciuncula. Wyberton. Rare.
Miana furuncula. Wyberton. Rare.
Chortodes arcuosa. Wyberton. Rare.
Grammesia trilinea. Wyberton. A few at light.
Caradrina blanda. Wyberton. Common.
Caradrina cubicularis. Wyberton. Common.
Rusina tenebrosa. Wyberton. Rare.
Agrotis puta. Wyberton. Rare.

Agrotis segetum. Wyberton. Common.
Agrotis nigricans. Wyberton. Common, 1896 only.
Agrotis præcox. Wyberton. One at light, Oct. 6th, 1894.
Noctua augur. Wyberton. Abundant.
Noctua plecta. Wyberton, etc. Common.
Noctua c-nigrum. Wyberton. Common.
Noctua triangulum. Wyberton. A few at light.
Noctua brunnea. Wyberton. Rare.
Noctua rubi. Wyberton. One at light, August 1896.
Noctua umbrosa. Wyberton. One at light, 1896.
Noctua baja. Wyberton. A few at light.
Noctua xanthographa. Swarms everywhere.
Triphæna ianthina. Wyberton. Common.
Triphæna interjecta. Wyberton. One some time ago.
Triphæna orbona. Wyberton. Abundant.
Triphæna pronuba. Wyberton. Abundant.
Amphipyra tragopogonis. Wyberton. Common at sugar.
Nænia typica. Abundant everywhere.
Tæniocampa rubricosa. Two, April 1896.
Tæniocampa gothica. Wyberton. Very common.
Tæniocampa instabilis. Wyberton. Very common.
Tæniocampa stabilis. Wyberton. Very common.
Tæniocampa gracilis. One, 1893.
Anchocelis pistacina. Wyberton. Swarms at light.
Anchocelis lunosa. Wyberton. Swarms at light.
Anchocelis litura. Wyberton. A few at sugar.
Xanthia cerago. Wyberton. One, 1893.
Xanthia gilvago. Wyberton. At sugar.
Xanthia ferruginea. Wyberton. Abundant at sugar.
Cirrœdia xerampelina. Wyberton. One at light, Sep. 1897.
Cosmia trapezina. Wyberton.
Cosmia affinis. Wyberton. Common at sugar.
Hecatera serena. Wyberton. Rare.
Polia flavocincta. Wyberton. Abundant.
Miselia oxyacanthæ. Wyberton. Abundant.
Euplexia lucipara. Wyberton. One, 1895.
Phlogophora meticulosa. Wyberton. Rare.
Hadena oleracea. Wyberton. Abundant.
Hadena pisi. Wyberton. Common.
Hadena thalassina. Wyberton. At light.
Xylocampa lithoriza. Wyberton. Rare.

Cucullia asteris. Wyberton. Two, several years ago.
Cucullia chamomillæ. Wyberton. One on palings, April 1897.
Cucullia umbratica. Wyberton. Fairly common.
Gonoptera libatrix. Wyberton. Common at sugar.
Abrostola triplasia. Wyberton. Occurs.
Plusia chrysitis. Wyberton. Common.
Plusia iota. Wyberton. Rare.
Plusia pulchrina. Wyberton. Abundant.
Plusia gamma. Wyberton. Abundant.
Uropteryx sambucaria. Wyberton.
Epione apiciaria. Wyberton. One at light, 1894.
Rumia cratægata. Boston.
Metrocampa margaritaria. Boston. Formerly common, now rare.
Eurymene dolabraria. Wyberton. One at light, 1894.
Pericallia syringaria. Wyberton. At light.
Selenia illunaria. Wyberton. At light.
Odontopera bidentata. Wyberton. At light.
Crocallis elinguaria. Wyberton. At light.
Ennomos tiliaria. Wyberton. At light : rare.
Ennomos erosaria (?). Wyberton. At light.
Ennomos angularia. Wyberton. At light.
Himera pennaria. Wyberton. At light.
Phigalia pilosaria. Wyberton. One pupa at roots of oak, January 1896; emerged February 1896.
Amphidasis betularia. Wyberton. One dark variety, 1896; ordinary form common.
Hemerophila abruptaria. Wyberton. At light.
Boarmia rhomboidaria. Wyberton. At light.
Geometra papilionaria. Wyberton. One at light, June 1892.
Hemithea thymiaria. Wyberton. Very common.
Ephyra omicronaria. Wyberton. Rare.
Acidalia scutulata. Wyberton. Common.
Acidalia virgularia. Wyberton. Common.
Acidalia remutaria. Wyberton. Common.
Acidalia aversata. Wyberton. Common.
Acidalia emarginata. Wyberton. One at light, August 1896.
Timandra amataria. Wyberton. Common.
Cabera pusaria. Wyberton. Common.
Halia wavaria. Wyberton.
Aspilates citraria. Wyberton. One in 1890.
Abraxas grossulariata. Wyberton. Abundant.

Ligdia adustata. Wyberton. One specimen, Aug. 1896.
Lomaspilis marginata. Wyberton.
Hybernia rupicapraria. Wyberton. Abundant.
Hybernia aurantiaria. Wyberton. At light.
Hybernia progemmaria. Wyberton. At light, abundant.
Anisopteryx æscularia. Wyberton. At light.
Cheimatobia brunata. Wyberton. Common.
Oporabia dilutata. Wyberton. Common.
Larentia didymata (?).
Larentia pectinitaria. Wyberton. Common.
Emmelesia albulata. Wyberton. Common.
Eupithecia centaureata. Wyberton. Rare.
Eupithecia subumbrata (?) Wyberton. Common.
Eupithecia vulgata. Wyberton. Abundant.
Eupithecia sobrinata. Wyberton. Rare.
Eupithecia rectangulata. Wyberton. Abundant.
Ypsipetes elutata. Wyberton. Common.
Melanthia rubiginata. Wyberton. Common.
Melanthia ocellata. Wyberton. Common.
Melanthia subtristata. Wyberton. Common.
Melanthia montanata. Wyberton. Common.
Melanthia fluctuata. Boston. Very common.
Anticlea badiata. Wyberton. Common at light.
Anticlea derivata. Wyberton. Common at light.
Coremia ferrugata. Wyberton. Very common.
Coremia unidentaria. Wyberton. Very common.
Camptogramma bilineata. Wyberton. Very common.
Phibalapteryx conjunctaria. Wyberton. Two at light, Aug. 1895
Scotosia dubitata. Wyberton. Rare.
Scotosia certata. Wyberton. Rare.
Cidaria russata. Wyberton. Abundant.
Cidaria immanata. Wyberton. Not common. Melanic var. at rest on ash trunk, Aug. 1897.
Cidaria testata. Wyberton. Common.
Cidaria fulvata. Wyberton. Common.
Cidaria pyraliata. Wyberton. Common.
Cidaria dotata. Wyberton. Common.
Pelurga comitata. Wyberton. Common.
Eubolia mensuraria. Wyberton. Common.
Eubolia palumbaria. Wyberton. One, some years ago.
Anaitis plagiata. Wyberton. Two at light, 1896.

In Memoriam.

THOMAS TATE, F.G.S.

The memory of Mr. Thomas Tate is worthy of preservation in any Yorkshire scientific journal, and especially so in the organ of the Yorkshire Naturalists' Union, of which he was a member of the General Committee for many years, and twice President of its Geological Section. He was an occasional contributor to the 'Naturalist, the Proceedings of the Yorkshire Geological and Polytechnic Society and the Quarterly Journal of the Geological Society.

He was born in Leeds on the 1st of January, 1833. For several years he attended a school in Princess Street, off West Street, and afterwards received private instruction from a clergyman. At the age of fourteen he entered the warehouse of Messrs. A. and S. Henry and Co., at Leeds, and continued with that firm on their removal to Bradford, remaining in their employ until he was about thirty years of age, when he commenced business in the stuff trade on his own account. During a period of bad trade in Bradford, when many large firms of stuff and wool merchants failed, he closed his warehouse and disposed of his stock.

For many years he had devoted much of his leisure to scientific studies, including botany, entomology, and geology, attending evening classes for instruction. He was also an early member of the Bradford Scientific Association, of which he was Vice-President when the first series of Gilchrist lectures was given at Bradford, and he was a contributor to the guarantee fund for the expenses. He also gave a series of lectures on Geology to the members, and conducted several excursions to places in the Bradford basin, with the principal geological features of which he had become thoroughly acquainted, as well as with those of the upper valley of the Aire. He also conducted excursions to the ponds of the district for the study of pond life, and he contributed to the 'Naturalist' an excellent paper on the organisation of the Water Flea (*Daphnia pulex*).

In 1879, in conjunction with Mr. Walter Morrison, of Tarn House, Malham, and several members of the Yorkshire Geological and Polytechnic Society, he conducted an investigation of the sources of the River Aire, tracing the water from Malham Tarn to the springs at Airehead, and the stream issuing from the base of the cave, by opening the sluices of the Tarn and flooding the intervening district containing swallow holes through which the water escapes, and observing its re-appearance. Acting as Secretary for the party,

he prepared a report of the investigations, which was read before the Society and published in the Proceedings, along with a second paper

on an 'Intermittent Spring' at Malham. On the same subjects he delivered a lecture to the Bradford Scientific Association in Oct. 1879.

On retiring from business Mr. Tate resolved to devote himself to scientific study and teaching, and in order to become thoroughly prepared for the work he took several courses of instruction at the Royal School of Mines, etc., South Kensington, and at the Yorkshire College, Leeds. For some time he conducted a geological class at the Bradford Mechanics' Institute, which was the means of inclining many young men to pursue a course of geological study. He took considerable interest in Biblical study while in Bradford, and for several years he conducted a large Bible class in connection with the Bradford Moor Wesleyan Sunday School. On returning to reside in Leeds, he became a popular and successful teacher of science. He had classes at Bradford, Harrogate, Leeds Mechanics' Institute, Ampleforth College, Malton, Dewsbury, Barnsley, and other Yorkshire towns. His subjects were chiefly biology, botany, physical geography, and geology. He was a diligent, thoughtful, and ardent student, and a kind and painstaking teacher, endeavouring to interest as well as instruct his pupils, by whom he was generally loved and respected.

In November 1891, he was appointed secretary to the Yorkshire Boulder Committee of the Yorkshire Naturalists' Union, writing the reports of the Committee from that date to the time of his death. Immediately on being appointed secretary he was commissioned by the Committee to visit the Lake country to examine its physical and geological features, and to collect such specimens of the rocks of the district as would (being properly labelled) enable students to identify boulders from them found in any part of the country Numerous specimens were collected and labelled on the spot, and afterwards sections were carefully prepared for the microscope, a set of which (with the corresponding rock specimens) is preserved and arranged for use at the Yorkshire College.

The papers read by Mr. Tate at the Leeds Geological Association include :—'The Victoria Cave at Settle,' December 28th, 1875; 'Terrestrial Energy,' February 18th, 1878; 'How to determine the Constituents of Igneous Rocks,' Nov. 22nd, 1880; 'Excursion to Ardsley,' April 7th, 1883; 'Excursion to Wrose Hill,' July 19th, 1884; 'Geology in relation to Health,' September 30th, 1884; 'Oceanic Deposits,' January 20th, 1887; 'The Practical Value of a Geological Training,' Nov. 17th, 1887; 'Excursion to Laisterdyke and Cutler Heights,' May 3rd, 1890; 'A Geological Episode as recorded in the Ingleton Granite; illustrated by specimens and Rock Sections,' February 19th, 1891; 'How to recognise Lake Country Rocks; illustrated by microscopic slides and a series of specimens specially collected for the Yorkshire Boulder Committee,' Dec. 17th,

1891; 'The Microscopic Structure of the Lake Country Rocks,' April 20th, 1893.

Mr. Tate also contributed the following papers to the Yorkshire Geological and Polytechnic Society's Proceedings:—'The Glacial Deposits of the Bradford Basin,' 1875; 'The Source of the River Aire,' 1879; 'Yorkshire Petrology: illustrated, Part I.,' 1888; do., Part II., 1889; 'The so-called Ingleton Granite,' 1891: which last was also read at the meeting of the British Association at Leeds.

Mr. Tate was a good petrologist. He prepared his own sections of rocks and minerals for microscopic examination, and described their special characteristics in his lectures and papers, as is evidenced in his articles on Yorkshire Petrology in 1888 and 1889.

The end came on the 27th of April 1897, when, after but a brief illness, Mr. Tate succumbed to an affection of the heart, at his residence, Eldon Mount, Leeds. He was twice married, and leaves a widow, but no family, to mourn his untimely decease.—C. D. HARDCASTLE.

NOTE—COLEOPTERA.

Rhizotrogus solstitialis at Hackness.—Re note by Mr. M. Lawson Thompson on record of the beetle *Rhizotrogus solstitialis* in Yorkshire, I may mention that I took a specimen here early on in the year hovering round a tree at Hackness.—ROWLAND J. FRYER, Hon. Sec. Scarborough Field Naturalists' Society, 8, Albemarle Crescent, Scarborough, 10th November, 1897.

NOTE—ORNITHOLOGY.

Waxwing in Nidderdale.—On Wednesday, Nov. 10th, by the river Nidd side just below Darley Station, I detected a Waxwing (*Ampelis garrulus*). It was feeding on berries of *Viburnum opulus*, and I had an uninterrupted view of it at a distance of within twenty yards with a binocular for about a quarter of an hour. It is a bird about which there could not well be a mistake.—W. CLARKSON CLARKSON, Darley, Ripley, 23rd November, 1897.

NOTE—PALÆOBOTANY.

Note on the Occurrence of Palæoxyris Brongniart **in Yorkshire.**—Although the genus *Palæoxyris* Brongt. is not unknown from the Yorkshire coal-field, it has hitherto been extremely rare. The discovery therefore of a considerable number of specimens by Mr. W. Gelder, at the Openworks, Worsboroughdale, near Barnsley, is worthy of record. In 1893, when Messrs. Dan Rylands, Limited, were removing the material at the Basset edge of the Barnsley Thick Coal (Middle Coal measures), and about nine or ten feet above the coal, a 'nest' of these curious fossils—supposed to be the eggs of sharks—was found. The specimens were closely packed together and contained in ironstone nodules. Within a space of six or seven yards in circumference no less than about 340 examples were found. These comprised the following species:—*Palæoxyris helicteroides* Morris sp., *P. carbonaria* Schimper, *P. prendelii* Lesquereux.—R. KIDSTON, Stirling, 25th November, 1897.

NOTES—GEOLOGY.

Glacial Boulders at Morecambe.—With reference to my note on this subject in the 'Naturalist' (p. 338), I am informed that several other examples of Shap granite have been noted on the beach close to Heysham, and some very large and beautifully striated Silurian boulders have lately been dug out during the excavations at the docks now being made at Heysham.—H. SPEIGHT, Bingley, Nov. 6th, 1897.

Boulders on the Lancashire Coast.—In reply to Mr. Speight's note in this month's number, I should like to say that I have carefully examined the boulders, large and small, along the Lancashire coast from Rossall towards Fleetwood and towards Blackpool, and have never discovered a piece of Shap granite there. There is a great abundance of syenite and granite boulders, chiefly, I think, from the hills of the Lake District, and in this respect the boulders on the West coast present such a contrast to those on the East coast where there seems to be a scarcity of granite and syenite but a great quantity of boulders of dolerite and basalt.—A. W. ROWE, Training College, Lincoln, Nov. 22nd, 1897.

Boulders of Shap Granite in Morecambe Bay.—It is always pleasing to hear of new finds of Shap granite erratics, and it is particularly gratifying to learn from the 'Naturalist' for November (p. 338) that Mr. Harry Speight has prevailed upon the vice-chairman of the Morecambe Local Board to take steps to preserve the boulder of Shap granite which he has found at West End, Morecambe. It is to be hoped that all the readers of this magazine will not lose a single opportunity of protecting these silent witnesses of the Ice Age, which are rapidly diminishing in numbers every year, through a variety of causes.

In answer to Mr. Speight's query as to whether boulders of Shap granite have hitherto been found as far west as Morecambe Bay, I should like to state that they have. Only last April, Mr. S. L. Petty, of Ulverston, recorded in the pages of this magazine (p. 105), a boulder of Shap granite from Walney Island. This is probably as far west as it ever will be found, until someone secures a specimen on the Isle of Man!

Nearly as far west, but in another direction, Mr. J. W. Stather, F.G.S., of Hull, has found a boulder of this granite, viz., on the shores of the Mersey at Dingle, near Liverpool. This is in an entirely new locality. (See Brit. Ass. Report on Erratic Blocks, 1896).

Mr. P. F. Kendall, F.G.S., in his chapter on the Glacial Geology of the British Isles, in Prof. G. F. Wright's 'Man and the Glacial Period' (1893), when speaking of the dispersion of Shap granite erratics, says (p. 180): 'A considerable number of the boulders also found their way to the southward, and a well-marked trail can be followed down into Morecambe Bay; and at Hest Bank, to the north of Lancaster, the boulder-clay contains many examples.' Reference should be made to this book for further information on this interesting subject.—T. SHEPPARD, Hon. Sec. Hull Scientific and Field Naturalists' Club, Hull, Nov. 15th, 1897.

Erratic Boulders in Lincolnshire.—I see in Mr. J. H. Cooke's paper on 'Lincolnshire Boulders,' in the September number of the 'Naturalist' for this year, various records of boulders met with at corners near houses and such like places. Now, Mr. Cooke is an accurate and able observer, and I do not write to impugn in any way his account of the boulders recorded; but I would draw attention to the fact that it does not at all follow that boulders found in such places are to be relied on as having been deposited there by ice-action. They may, in fact, have been purposely brought there for the uses they are put to; and, though occurring in the district, they may not belong to it at all. Mr. Cooke, I am aware, does not urge anything to the contrary; he simply records meeting with certain boulders; and he is, evidently, alive to the point I wish to draw attention to, for he only speaks of one, out of all those he names, as 'evidently in situ.' The 'Shap-Granite' boulder found at Luddington, serving 'as a guard to the corner of the gateway of Smith's Farm,' and collections of rocks of the same class in particular localities, as at North Thoresby, may be taken as cases in point.

It may not be generally known that boulders and blocks of stone are frequently brought up and down the Trent by boats as ballast, in want of a better cargo, and that this ballast is shot out, here and there on wharves and other spots where a market can be found for it, or a fresh cargo is met with. Such blocks and boulders are much used on lands bordering the Trent for guarding road-sides and corners, holding up footpaths, marking gateways, and for other similar purposes.

I once met with a large boulder on a road-side near here (basalt I should say from recollection) nearly three feet long and of proportionate width and depth, and I was surprised, on getting it turned over, to find underneath the mark of the blasting-rod. It had no doubt been brought here as ballast in some ship, and in no sense was it a true erratic. I throw no doubt on any of the boulders recorded in Mr. Cooke's paper, but wish only to point out that due care should be exercised in attempting to appropriate them to the localities in which they appear.—F. M. BURTON, Highfield, Gainsborough, 15th November, 1897.

NOTE—ORNITHOLOGY.

The Kingfisher in North Lancashire.—In working out roughly the distribution of this species in 'Fauna of Lakeland,' 1892, p. 168, Mr. Macpherson almost omits North Lancashire. On the authority of Mr. W. Duckworth, it is recorded from the Ulverston district, and this is all. A paragraph in the 'Barrow News,' July 27th, 1897, called my attention to the matter:

> KINGFISHER.—A fine specimen of the Kingfisher was seen on Wednesday last in the river Lickle. Two are reported as being up the river.

I accordingly wrote to Dr. Fawcitt, of Broughton, for information, who replied that six or seven years ago a specimen was shot on the Lickle (a stream between Broughton-in-Furness and the Duddon), and that one had been seen last year at Kirkby Pool, which lies on the other side of Broughton. Mr. Duckworth wrote: 'Oct. 29th, 1897. One seen at Tridley Point,' and told me further of a certain gunner who admitted having shot twelve off the same post, at different times; and he knew of one specimen shot in Cartmel recently. So we know the species is present on the outskirts, or shore area, in Furness; and one unlocated, in Cartmel. Apparently not recorded for the neighbourhood of Windermere or Coniston Lakes. Is this true?—S. L. PETTY, Nov. 5th, 1897.

NOTES AND NEWS.

We have received from Mr. R. Charles, of Christchurch, Hants, No. 3 of his collections of Eocene and Oligocene fossils from the Hampshire Basin. This admirable series of Hampshire fossils is accompanied by a few explanatory notes upon the present condition of the famous collecting grounds at Barton. These cliffs, so long the very happiest hunting grounds of the south country geologists, are now in a parlous state, and the mighty bags of the old fossil hunters will probably never be equalled again. We know this complaint full well—sea walls, improved land drainage, more careful tendance of cliffs and other causes have so arrested the waste of the cliffs composed of soft Tertiary rocks that many of the most prolific localities of old time have passed into the region of tradition and, to the rising generation of geologists, almost of fable. Mr. Charles is doing his best to keep the Barton fossils among the actualities of life, and his accurately named collections of beautiful shells must surely do much to gratify the wholesome acquisitiveness of collectors. The collection before us is as good as those which have previously been submitted to us. We can, and need, say no more. Students of recent shells will be interested in the few examples which are included with the fossils, amongst which we note the fragile *Pandora inequivalvis*, a shell not often seen in northern collections.

CLASSIFIED INDEX.

CONTRIBUTORS.

Armitt, Miss Mary L., 192, 243.

Backhouse, Jas., F.Z.S., M.B.O.U., 76, 354.
Bailey, Matthew, 80, 158, 188.
Barnes, Richard, 179.
Bennett, Arthur, F.L.S., 77.
Benoni, Gregory O., 209.
Binnie, Francis G., 349.
Burton, F. M., F.L.S., F.G.S., 4, 253, 356, 359, 372.
Burton, John, 66.
Butterfield, W. C. J.R., M.B.O.U., 93, 335.

Carr, Prof. J. W., F.L.S., 352.
Carter, John Wm., 26, 145.
Carter, Rev. W. Lower, M.A., F.G.S., 67.
Clarkson, W. C., L.R.C.S., 370.
Claypon, Joseph C. Lane-, 361.
Cocks, Llewellyn J., 189, 351.
Collingwood, W. G., 282.
Comber, C. T. Thornton, L.R.C.P., M.R.C.S., 60.
Cooke, John H., B.SC., F.G.S., 20, 103, 277, 283.
Coombe, J. Newton, 18.
Corbett, Herbert H., M.R.C.S., 68, 226, 242, 353.
Cordeaux, John, F.R.G.S., M.B.O.U., 13, 193, 237, 324, 352, 356.
Crewdson, Rev. George, M.A., 308.
Crofts, W. H., 74.
Crossland, Charles, 341.
Crowther, Henry, F.R.M.S., 49, 80, 80, 80, 272.
Cudworth, W., 67.

Davis, Paul, 73.
Dobree, N. F., 298.

Falconer, William, 354.
Fieldsend, A., 254.
Fowler, Rev. Wm., M.A., 178, 255.
Fowler, Rev. Canon W. W., M.A., F.L.S., 149.
Friend, Rev. Hilderic, 227, 257.
Fryer, Rowland J., 370.

Grabham, Oxley, M.A., M.B.O.U., 129, 177, 241, 273.
Gyngell, W., 298.

Haigh, G. H. Caton, M.B.O.U., 188.
Hardcastle, C. D., 367.
Harker, Alfred, M.A., F.G.S., 111.
Hawkesworth, Edwin, 61.
Hemingway, W., 67.
Henry, John, 127, 339.
Hodgson, Wm., A.L.S., 145.
Howarth, J. H., F.G.S., 67.

Ingham, Wm., M.A., 178.

Keegan, P. Q., LL.D., 41, 337.
Kendall, Percy F., F.G.S., 52, 68, 69, 156, 372.
Kidston, Robert, F.R.S.E., F.G.S., 370.
Kew, H. Wallis, F.Z.S., 106.

Law, Robert, F.G.S., 64.
Lees, F. Arnold, L.R.C.P., 51, 81, 107, 126, 127, 132, 172, 269.
Lofthouse, J. H., 68.
Loten, Philip W., 126.

Marshall, J. J., 102.
Mason, James Eardley, 178, 188, 192, 253, 358.
Muff, H., 63.

Nicholson, John, 74.

Oldham, Charles, 141, 242, 308, 308.

Parrish, W. S., 73.
Paterson, A., 352.
Pawson, Albert Henry, F.L.S., 1.
Peacock, Rev. E. Adrian Woodruffe-, L.TH., F.L.S., F.G.S., 21, 133, 167, 209, 226, 226, 226, 253, 271, 317, 355.
Petty, S. Lister, 4, 85, 105, 109, 191, 229, 275, 282, 309, 325, 333, 372.
Petch, T., B.A., 190.
Porritt, George T., F.L.S., F.E.S., 115, 366.
Potter, E. G., 110, 114, 114, 143, 298, 352.

Ralfe, P., 221.
Raynor, Rev. Gilbert H., M.A., 58.
Roebuck, W. Denison, F.L.S., 27, 48, 58, 95, 101, 144, 159, 191, 192, 240, 285.
Rowe, Rev. A. W., M.A., 371.
Rowntree, J. H., 308.

Saltonstall, Thomas, 66.
Sheppard, T., 63, 228, 371.
Shuffrey, Rev. W. A., M.A., 354.
Slater, Matthew B., F.L.S., 128.
Speight, Harry, 338, 371.
Stabler, George, 5, 213, 261.
Stather, J. W., F.G.S., 72, 73.

Tate, Thomas, F.G.S., 59.
Taylor, John W., F.L.S., 75.
Thompson, M. Lawson, 352.
Thornley, Rev. Alfred, M.A., F.L.S., F.E.S., 176, 358.
Tuckwell, Rev. Wm., M.A., 20.

Walton, Rev. J. Conway, M.A., 321.
Walton, F. Fielder. F.G.S., 74.
Waterfall, Charles, 48.
Watt, Hugh Boyd, 324.
West, George S., A.R.C.S., 157.
West, William, F.L.S., 18, 157.
West, William, Jun., B.A., 126.
Whitehead, Henry, 66.
Whitlock, F. B., 53, 308.
Whitwell, William, F.L.S., 173, 299.

BOOK NOTICES.

Adams, Lionel Ernest.—The Collector's Manual of British Land and Freshwater Shells, 141.

Armitt, Mary L.—Studies of Lakeland Birds, 271.

Barkley, H. C.—Studies in the Art of Ratcatching, 271.

Barrett, Charles G.—The Lepidoptera of the British Islands, vol. 3, 192.

Barrow Nat. Field Club.—Annual Report for 1895-96, 191.

Bennett, Arthur. — Various Botanical Reprints, 127, 256.

Browne, Montagu.—Artistic and Scientific Taxidermy and Modelling, 49-50.

Carrington, John T. — Label List of Varieties of British Five-banded Land Shells, 141.

Clarke, W. A.—First Records of British Flowering Plants, 107-110.

Dawson, J. W.—Relics of Primeval Life, 227.

Dixon, Charles.—British Sea Birds, 58.

Dean, Richard, and others.—The Dahlia, its History and Cultivation, 274.

Dury, W. D., and S. T. Wright.—Fruit Culture for Amateurs, with Appendix on Insect Foes, 147.

Edwards, James.—The Hemiptera-Homoptera (Cicadina and Psyllina) of the British Isles, 148.

Fernie, W. T.—Herbal Simples approved for Modern Uses of Cure, 269-271.

Fulcher, F. A.—Birds of Our Islands, 260.

Geldard, J. W., and R. Taylor Manson.—List of Tees Valley Land and Freshwater Shells, 141.

Gordon, W. J.—Our Country's Butterflies and Moths, and How to Know them, 240.

Harker, Alfred.—Petrology for Students, 272.

Henslow, George.—How to Study Wild Flowers, 51-52.

Lowe, John.—The Yew-Trees of Great Britain and Ireland, 333.

Macpherson, H. A., and others.—Red Deer, Natural History, etc., 144.

Manchester Museum. — Annual Report, 1896-97, and 'Notes,' 282.

Martin, Edward A.—A Bibliography of Gilbert White, 335.

Masefield, John R. B.—Wild Bird Protection and Nesting Boxes, 101.

Miles, Alfred H., and others.—The Concise Knowledge Natural History, 252.

Muff, Herbert, and Thomas Sheppard.—Glacial Geology of Robin Hood's Bay, 94.

Newton, Alfred. —Dictionary of Birds, Part 4, 93-94.

Pritt, T. E.—An Angler's Basket, 191.

Standen, Robert.—The Land Mollusca of Ballycastle and District, Antrim, 94.

Tutt, J. W.—British Butterflies, 48.

Warrington Lit. and Phil. Society.—Proceedings, 1896-97, 282.

West, W., and G. S.—On some North American Desmids, 127.

ILLUSTRATIONS.

Azeca elongat Taylor, sp. nov., 75.

Azeca tridens Pult., 75.

Eggs of Stone Curlew, 273.

Nesting-Box for Wild Birds, 102.

Portrait and Autograph of A. H. Green, 112.

Portrait and Autograph of Thomas Hick, 82.

Portrait and Autograph of Thos. Tate, 368.

Portrait and Autographs of the late Bishop of Wakefield, 299, 303, 306.

Portrait of John Whitehead, 260.

CHESHIRE.

Ferns, Fern Allies, and Characeæ: Bibliography for 1888-89, W. Denison Roebuck, 96-100.

Flowering Plants: Bibliography of Phanerogamic Botany for 1891, W. Denison Roebuck, 286-294; Early Cheshire Records, S. Lister Petty, 109.

Hymenoptera: Bibliography for 1890-92, W. Denison Roebuck, 161-165.

Mammalia: Whiskered Bat on the Cheshire and Staffordshire Border, C. Oldham, 242.

Mollusca: Bibliography of Land and Freshwater Mollusca for 1890-91, W. Denison Roebuck, 27-39.

Personal Notices: Notice of the late John Whitehead, 191, and with portrait, 260.

CUMBERLAND.

Birds: Seascale Bird-notes, Mary L. Armitt, 192; Walls and Wall-nesters in Cumberland, Id., 243-252.

Ferns, Fern Allies, and Characeæ: Bibliography for 1888-89, W. Denison Roebuck, 96-97; West Cumberland Bird-notes, F. B. Whitlock, 55.

Flowering Plants: Bibliography of Phanerogamic Botany for 1891, W. Denison Roebuck, 286-297; Chemistry of some Common Lakeland Plants, P. Q. Keegan, 41-47; Early Cumberland Records, S. Lister Petty, 109; Vicia lutea and other rare plants near Workington, Wm. Hodgson, 145.

Hymenoptera: Bibliography for 1890-92, W. Denison Roebuck, 161-166.

Mollusca: Bibliography of Land and Freshwater Mollusca for 1890-91, W. Denison Roebuck, 28-38.

Mosses: Cumberland Stations for Mosses, Geo. Stabler, 5, 6, 7, 8, 9, 11, 12, 213, 216, 217, 219, 262, 265.

Personal Notices: Death of Dr. John Leitch, of Silloth, 106.

DERBYSHIRE.

Birds: Waxwing at Smalley, F. B. Whitlock, 57; Greenshank in the Peak, C. Oldham, 308; Storm-Petrel and Red-necked Grebe in the Peak, C. Oldham, 308.

Ferns, Fern Allies, and Characeæ: Bibliography for 1888-89, W. Denison Roebuck, 97-100.

Flowering Plants: Bibliography of Phanerogamic Botany for 1891, W. Denison Roebuck, 286-297; Early Derbyshire Records, S. Lister Petty, 109; Notice of W. H. Painter's proposed Supplement to his Flora of Derbyshire, 260.

Hymenoptera: Bibliography for 1888-89, W. Denison Roebuck, 159-166.

Mollusca: Bibliography of Land and Freshwater Mollusca for 1890-91, W. Denison Roebuck, 27-40.

Mosses: Amblystegium confervoides in Dovedale, Geo. Stabler, 266.

Personal Notices: Lionel E. Adams and his Molluscan Explorations in Ireland, 252; W. H. Painter's Supplement to his Flora of Derbyshire, 260; John Whitehead and the Derbyshire Moss-Flora (with portrait), 260.

DURHAM.

Ferns, Fern Allies, and Characeæ: Bibliography for 1888-89, W. Denison Roebuck, 98-100.

Flowering Plants: Bibliography of Phanerogamic Botany for 1891, W. Denison Roebuck, 286-297; Early Durham Plant-records, F. Arnold Lees, 108, S. Lister Petty, 109.

Hymenoptera: Bibliography for 1890-92, W. Denison Roebuck, 159-166.

Mollusca: Bibliography of Land and Freshwater Mollusca for 1890-91, W. Denison Roebuck, 29-39; Teesdale Mollusca, Charles Oldham, 143.

Mosses: Additional Localities for various Mosses in South Durham, Richard Barnes, 179-188; Catascopium nigritum and Cinclidium stygium, at Widdy Bank, G. Stabler, 217, 218.

LANCASHIRE.

Ferns, Fern Allies, and Characeæ: Bibliography for 1888-89, W. Denison Roebuck, 95-99.

Flowering Plants: Bibliography of Phanerogamic Botany for 1891, W. Denison Roebuck, 285-297; Early Lancashire Plant Records, S. Lister Petty, 109; West Lancashire Plants, F. Arnold Lees, 127.

Geology: Glacial Boulders at West End, Morecambe, H. Speight, 338; Glacial Boulders at Morecambe, H. Speight, 371; Boulders on the Lancashire Coast, A. W. Rowe, 371; Boulders of Shap Granite in Morecambe Bay, T. Sheppard, 371; and near Liverpool, T. Sheppard, 371.

Hymenoptera: Bibliography for 1890-92, W. Denison Roebuck, 161-166.

Mollusca: Bibliography of Land and Fresh-water Mollusca for 1890-91, W. Denison Roebuck, 28-40.

Mosses: Lancashire Station for Amblyodon dealbatus, Geo. Stabler, 213.

Museums: Report of Manchester Museum for 1896-97, 282.

LANCASHIRE—*continued.*

Personal Notices: Mark Stirrup as President of Manchester Geological Society, 25; Robert Standen's Paper on Land Mollusca of Ballycastle district, Antrim, 94; J. Cosmo Melvill elected President of Manchester Literary and Philosophical Society, 172; the late John Whitehead, 191; Investigations in Ireland by R. Standen, G. W. Chaster, and J. R. Hardy, 252; Portrait and note as to John Whitehead, 260; Willoughby Gardner elected F.L.S., 282.

Societies: Manchester Geological Society, 25; Proceedings of Warrington Literary and Philosophical Society, 282.

LINCOLNSHIRE.

Arachnida: Dolomedes mirabilis observed at Holbeck, Somersby, or Tetford, J. Eardley Mason, 320.

Birds: Bird-notes from the Humber District, autumn of 1896, John Cordeaux, 13-18; Unusual Nidification of Missel Thrush at Lincoln, J. Eardley Mason, 188; Long-eared or Horned Owl in North Lincolnshire, J. Eardley Mason, 192; American Red-breasted Snipe, Indian Roller, Water Pipit, and Greenish Tree Warbler in North Lincolnshire, J. Cordeaux, 202; Bird-notes in Lincolnshire, Gregory O. Benoni, 210-212; Woodpigeon at Elsham, and Woodcock in various localities, Id., 211, 212; Bird-notes from the Humber District, John Cordeaux, 237-240; Birds observed by Lincolnshire Naturalists near Gainsborough, A. Fieldsend, 254-255; Birds observed by Lincolnshire Naturalists at Holbeck, Somersby, and Tetford, 318; Birds observed by Lincolnshire Naturalists at Frampton and Wyberton Fitties, J. Cordeaux, 356.

Coleoptera: Bembidium stomoides near Torksey Abbey, W. W. Fowler, 151; Elaphrus riparius seen near Gainsborough, J. Eardley Mason, 255; Beetles observed at Holbeck, Somersby, and Tetford, J. Eardley Mason, 320; Beetles observed on Kirton Marshes, A. Thornley, 358.

Diptera: Chironomus sylvestris at Lincoln, J. Eardley Mason, 178; Diptera observed on Kirton Marshes, A. Thornley, 358.

Ferns, Fern Allies, and Characeæ: Bibliography for 1888-89, W. Denison Roebuck, 97-99; Lycopods observed by Lincolnshire Naturalists on Scotton Common, W. Fowler, 255; Lycopods and Lastræa thelypteris there, E. A. Woodruffe-Peacock, 256; Botrychium noted on Hoe Hill, E. A. Woodruffe-Peacock, 320.

Fishes: Trout of Somersby Beck, J. Conway Walton, 321.

Flowering Plants: Bibliography of Phanerogamic Botany for 1891, W. Denison Roebuck, 286-297; Early Lincolnshire Plant-records, F. Arnold Lees, 109; S. Lister Petty, 109; A Critical Catalogue of Lincolnshire Plants, from all known sources, 12th paper, E. Adrian Woodruffe-Peacock, 133-140; 13th paper, 167-172; Lincolnshire Coast-plants, W. W. Fowler, 151; Trifolium filiforme near Louth, F. Arnold Lees, 172; New Alien Records for Lincolnshire, E. A. Woodruffe-Peacock, 226; a Rare Alien, Anchusa sempervirens, in Lincolnshire, Id., 226; Confirmation of Record of Thalictrum collinum in Lincolnshire, Id., 226; Plants observed by Lincolnshire Naturalists near Gainsborough, E. Adrian Woodruffe-Peacock, 253-256; five new Lincolnshire Plant-records, E. A. Woodruffe-Peacock, 271; Digitalis at Holbeck, E. A. Woodruffe-Peacock, 317; Plants noted, John Cordeaux, 318; E. A. Woodruffe-Peacock, 320-321; Plants observed by Lincolnshire Naturalists at Frampton and Wyberton Fitties, E. A. Woodruffe-Peacock, 359.

Fungi: Peziza reticulata near Louth, and Acetabula vulgaris in Brackenborough Wood, W. Fowler, 178.

Geology: Lincolnshire Boulder Committee's Report, a correction, W. Tuckwell, 20; Middle Lias Reptile from Lincoln, J. H. Cooke, 20; Lincolnshire Boulders, J. H. Cooke, 103-105; Lincolnshire Geology, W. W. Fowler, 151; Lincolnshire Erratics, Thos. Sheppard, 228; Geological Observations at Excursion near Gainsborough, F. M. Burton, 253-254; Notes on the Glacial Deposits of Cleethorpes and District, John H. Cooke, 277-281; Lincolnshire Boulders, second paper, John H. Cooke, 283-284; Geology of Holbeck, Somersby, and Tetford, E. A. Woodruffe-Peacock, 321; Geology of Frampton and Wyberton, F. M. Burton, 356; Erratic Boulders in Lincolnshire, F. M. Burton, 371.

LINCOLNSHIRE—*continued.*

Hemiptera: Notonecta glauca near Gainsborough, J. Eardley Mason, 255; Hemiptera observed at Holbeck, Somersby, and Tetford, J. Eardley Mason, 319-320; Hemiptera observed on Kirton Marshes, J. Eardley Mason, 358.

Hymenoptera: Bibliography for 1890-92, W. Denison Roebuck, 161-165; Sirex juvencus, S. gigas and Rhyssa persuasoria near Grantham, A. Thornley, 176; Bees observed on Kirton Marshes, A. Thornley, 358.

Lepidoptera: Coremia quadrifasciaria and other species at Panton near Wragby, G. H. Raynor, 58; various Lepidoptera in Lincolnshire, W. W. Fowler, 152-154; Butterflies observed at Frampton and Wyberton Fitties, E. A. Woodruffe-Peacock, 358; List of Lepidoptera taken at Wyberton near Boston, J. C. Lane-Claypon, 361-366.

Lichens: Cladonia rangiferina on Scotton Common, W. Fowler, 255.

Mammalia: Long-tailed Field Mouse in North Lincolnshire, Gregory O. Benoni, 212; Habits of Fox and Badger at Holbeck, J. Conway Walter, 321; Hybrids of Hare and Rabbit in Lincolnshire, J. Conway Walter, 321-324.

Mollusca: Bibliography of Land and Freshwater Mollusca for 1890-91, W. Denison Roebuck, 28-39; Cardium edule and Paludestrina ventrosa in Sandholme Creek, F. M. Burton, 359; Mytilus edulis in Boston Deeps, Colonel Moore, 359.

Mosses: Leucobryum glaucum and Hypnum exannulatum on Scotton Common, W. Fowler, 255.

Neuroptera: Panorpa communis on Kirton Marsh, A. Thornley, 358.

Orthoptera: Grasshoppers on Kirton Marsh, A. Thornley, 358.

Personal Notices: Rev. E. Adrian Woodruffe-Peacock and his new edition of Lowe's 'British Grasses,' 84.

Reptiles: Natterjack on Lincolnshire Coast, W. W. Fowler, 151; Reptiles observed by Lincolnshire Naturalists near Gainsborough, A. Fieldsend, F. M. Burton, and J. Eardley Mason, 255.

Societies: President's Address to the Lincolnshire Naturalists' Union, W. W. Fowler, 149-156; Lincolnshire Naturalists in the Gainsborough Neighbourhood, E. Adrian Woodruffe-Peacock, 253-256; Lincolnshire Naturalists' Union at Holbeck, Somersby and Tetford, E. Adrian Woodruffe-Peacock, 317-324: Naturalists' Union at Frampton and Wyberton Fitties, E. A. Woodruffe-Peacock, 355-360.

Worms: The Land Planarian, Rhynchodesmus terrestris, near Louth, H. Wallis Kew, 106.

ISLE OF MAN.

Birds: The Birds of Lonan, Isle of Man, P. Ralfe, 221-226.

Ferns, Fern Allies, and Characeæ: Bibliography for 1888-89, W. Denison Roebuck, 96-100.

Flowering Plants: Bibliography of Phanerogamic Botany for 1891, W. Denison Roebuck, 287-295; Early Manx Plant Records, S. Lister Petty, 109.

Hymenoptera: Bibliography for 1890-92, W. Denison Roebuck, 159-164.

Mollusca: Bibliography of Land and Fresh-water Mollusca for 1890-91, W. Denison Roebuck, 27-39.

NORTHUMBERLAND.

Arachnida: Epeira cucurbitina near Featherstone Castle, W. Falconer, 354.

Ferns, Fern Allies, and Characeæ: Bibliography for 1888-89, W. Denison Roebuck, 97-99.

Flowering Plants: Bibliography of Phanerogamic Botany for 1891, W. Denison Roebuck, 286 293; Carex aquatilis in Cheviotland, A. Bennett, 79; Early Northumbrian Records, F. Arnold Lees, 108-109; S. Lister Petty, 109.

Hymenoptera: Bibliography for 1890-92, W. Denison Roebuck, 159-166.

Mollusca: Bibliography of Land and Freshwater Mollusca for 1890-91, W. Denison Roebuck, 36.

Personal Notices: Prizes won by B. W. Ellison and Miss E. Spencer Hick, and presented by Canons Tristram and Norman, 360.

NOTTINGHAMSHIRE.

Birds: Bird-Notes from the Mid-Trent Valley, F. B. Whitlock, 53-57; Caspian Tern on the Trent, F. B. Whitlock, 308.

Ferns, Fern Allies, and Characeæ: Bibliography for 1888-89, W. Denison Roebuck, 97.

Flowering Plants: Bibliography of Phanerogamic Botany for 1891, W. Denison Roebuck, 286-291; Early Nottinghamshire Plant Records, S. Lister Petty, 109.

Fungi: The British Mycological Society at Sherwood Forest, and discovery of Entoloma hirtophyllum, new to Britain, and Amanita recutita, J. W. Carr, 352.

Hymenoptera: Bibliography for 1890-92, W. Denison Roebuck, 160-166.

Mollusca: Bibliography of Land and Freshwater Mollusca for 1890-91, W. Denison Roebuck, 29-37.

WESTMORLAND AND FURNESS.

Birds: Walls and Wall-nesters in Lakeland, Mary L. Armitt, 243-252; Kingfishers in Lake Lancashire, S. Lister Petty, 372.

Ferns, Fern Allies, and Characeæ: Bibliography for 1888-89, W. Denison Roebuck, 95-100.

Flowering Plants: Bibliography of Phanerogamic Botany for 1891, W. Denison Roebuck, 285-297; Anthemis nobilis in North Lancashire, S. Lister Petty, 4; Chemistry of some common Lakeland Plants, P. Q. Keegan, 41-47; Carex aquatilis in Lake Lancashire, Arthur Bennett, 77-80; Calamagrostis lanceolata at Dufton and Kirkby Lonsdale, A. Bennett, 77; The Constituents of the North Lancashire Flora, 1597(?)-1893, S. Lister Petty, eleventh paper, 85-92; twelfth paper, 229-236; thirteenth paper, 309-316; fourteenth paper, 325-332; Early Westmorland Plant-records, S. Lister Petty, 109; New Plant-records for Lake Lancashire, John Henry, 127; Mercurialis annua, Amsinctsia lycopsoides, and Polemonium cæruleum in the Barrow district, S. Lister Petty, 191; Yew trees in Yewdale, S. Lister Petty, 335; North Lancashire Plants, John Henry, 339-340.

Fungi: Hirneola auricula-judæ near Witherslack, Wm. West, 18.

Geology: Travelled Shap Granite on Walney Island, S. Lister Petty, 105; Boulders of Shap Granite on Walney Island, T. Sheppard, 371.

Hymenoptera: Bibliography for 1890-92, W. Denison Roebuck, 159-165.

Lepidoptera: Sphinx convolvuli and Crambus pinetellus at Windermere, Geo. Crewdson, 308.

Mammalia: Red Deer in Martindale, H. A. Macpherson, 144; former Existence of Deer, Wild Boar, Wolf, shown by place-names, 282.

Mollusca: Bibliography of Land and Freshwater Mollusca for 1890-91, W. Denison Roebuck, 31-39.

Mosses and Hepatics: The Hepaticæ and Musci of Westmorland, Geo. Stabler, 5-12, 213-220, 261-268.

Societies: Annual Report of Barrow Naturalists' Field Club, 191.

YORKSHIRE.

Algæ: Algæ at Roche Abbey, a correction, J. N. Coombe, 18; On the Collection of Fresh-water Algæ, W. West and G. S. West, 157-158.

Birds: Notes from the Humber District, John Cordeaux, 13-18; the Little Owl at Escrick, James Backhouse, 76; Sparrowhawk on Telegraph Wires at Woodlesford, H. Crowther, 80; Sooty Shearwater at Bridlington, H. Crowther, 80; Flamborough Bird-Notes, M. Bailey, 80, 158, 188; Red-backed Shrike at Spurn, E. G. Potter, 114; Large Clutch of Eggs of Sparrowhawk near York, E. G. Potter, 114; Sclavonian Grebe at Easington in Holderness, P. W. Loten, 126; Owls and their Longevity, Oxley Grabham, 129-132; Sanderling in Yorkshire in June, E. G. Potter, 143, G. H. Caton Haigh, 188; Grasshopper Warbler in Holderness, T. Petch, 190; Enumeration of additions to the Yorkshire Avifauna since 1881, J. Cordeaux, 201; Bird-Notes from the Humber District, J. Cordeaux, 237-240; the Food of the Merlin, Oxley Grabham, 241-242; Nidification of Martins on Natural Sites at Kilnsey Crag and Saltburn

YORKSHIRE—*continued.*

Cliffs, Mary L. Armitt, 245; Eggs of Stone Curlew (with illustrations), Oxley Grabham, 273-274; Eggs of Stone Curlew and Peewits in East Yorkshire, N. F. Dobree, 298; Common Swift Nesting in Tree near Scarborough, W. Gyngell, 298; Pectoral Sandpiper near Spurn, J. Cordeaux, 352; Kestrel and Long-eared Owl breeding in close proximity to each other at Strensall, E. G. Potter, 352; Waxwing in Nidderdale, W. C. Clarkson, 370.

Cœlenterata: Polyzoa and Hydrozoa at Filey, S. Lister Petty, 275-276.

Coleoptera: Carabus arvensis near Bradford, J. W. Carter, 144; Acanthocinus ædilis at Doncaster, A. Paterson, 352; Recent Occurrence of Rhizotrogus solstitialis in Yorkshire, M. Lawson Thompson, 352; and at Hackness, R. J. Fryer, 370.

Ferns, Fern Allies, and Characeæ: Bibliography for 1888-89, W. Denison Roebuck, 95-100; Chara fœtida at Sandal near Doncaster, H. H. Corbett, 354.

Flowering Plants: Bibliography of Phanerogamic Botany for 1891, W. Denison Roebuck, 285-297; Anthemis anglica on the coast of Gristhorpe and Flamborough, F. M. Burton, 4; East Riding Sedges, Carex punctata and C. distans, C. Waterfall, 48; Early Yorkshire Plant Records, F. Arnold Lees, 107-109; Cephalanthera ensifolia in Yorkshire, an Early Record, W. West, Jun., 126; Hypopitys monotropa in Studley Woods, H. M. Platnauer, 169; Arctic Plants in Yorkshire, J. Cordeaux, 197; Lathyrus nissolia near Doncaster, H. H. Corbett, 226; Triglochin palustre, food-plant of Eupœcilia vectisana, at Askern, H. H. Corbett, 242; Yews at Giggleswick, etc., S. Lister Petty, 333; Lathyrus nissolia and other rare plants at Sandal, near Doncaster, H. H. Corbett, 353-354.

Fungi: Fungus Foray at Barnsley, with list of 201 species found, C. Crossland, 341-348.

Geology: Yorkshire Boulder Committee and its Tenth Year's Work, Thos. Tate, 59-74; Report of East Riding Boulder Committee. 70-74; Drift Deposits of Yorkshire, John Cordeaux. 195-196; Erratics in Yorkshire, T. Sheppard, 228; Geology of Sandal, near Doncaster, H. H. Corbett, 353.

Hymenoptera: Bibliography for 1890-92, W. Denison Roebuck, 159-166.

Lepidoptera: Eupœcilia vectisana at Askern, an interesting Addition to the Yorkshire Lepidoptera, H. H. Corbett, 242; Vanessa antiopa near Scarborough, J. H. Rowntree, 308.

Mammalia: Whale's bones dug up at Goole, T. Bunker, 50; Red Deer in Swaledale, 144; the Harvest Mouse in Yorkshire, Oxley Grabham, 177-178; Mammalian Remains in Holderness Forest-bed, J. Cordeaux, 200; Squirrel in Upper Wharfedale, W. A. Shuffrey, 354; Great Increase of Arvicola agrestis at York, J. Backhouse, 354.

Mollusca: Bibliography of Land and Freshwater Mollusca for 1890-91. W. Denison Roebuck, 27-40; Azeca elongata, a probably new species in the British Isles, J. W. Taylor (illustrated), 75-76; Testacella scutulum at Adel near Leeds, H. Crowther, 80; Teesdale Mollusca, Charles Oldham, 143; Corbicula fluminalis in Holderness gravels, J. Cordeaux, 201.

Mosses and Hepatics: West and North Yorkshire Stations for Mosses, Geo. Stabler, 5, 6, 10, 11; Phascum floerkii, an Addition to the Moss-Flora of East Yorkshire, J. J. Marshall, 102; Jubula hutchinsiæ, a rare hepatic, new to Yorkshire, M. B. Slater, 128; Henry Boswell and West Yorkshire Mosses, W. Whitwell, 173-176; Hypnum giganteum at Skipwith, a new record for East Yorkshire, W. Ingham, 178; Some New Records for the Moss-Flora of Nidderdale and Wensleydale, with additional localities for North Yorkshire and South Durham, Richard Barnes, 179-188; Some Nidderdale Mosses, L. J. Cocks, 189; Yorkshire Stations for Mosses, Geo. Stabler, 217-220, 261-266; Timmia norvegica in Upper Teesdale, a new record for Yorkshire and for England, W. Ingham, 242; A Second West Riding Locality for Jubula hutchinsiæ, L. J. Cocks, 351.

Museums: Section of Sequoia presented by John Clayton to Bradford Art Museum, 47.

Neuroptera, etc.: Preliminary List of the Neuroptera and Trichoptera of Yorkshire (omitting Psocidæ and Ephemeridæ), G. T. Porritt, 115-126; Neuroptera-Planipennia and Trichoptera observed near Tadcaster, Francis G. Binnie, 349-351.

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BOOKS RECEIVED.

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Notarisia, Anno 1896, Vol. 11, No. 2-3, Av.-Sep. [Dr. D. Levi-Morenos, Redattore.
The Halifax Naturalist, Vol. 1, No. 5, December 1896. [The Editors.
The Ornithologist, Vol. 1, Nos. 9-12, Nov. 1896-Feb. 1897. [H. K. Swann, Editor.
The Essex Naturalist, Vol. 8, Nos. 11-12, Nov.-Dec. 1894. [The Essex Field Club.
Geography; Notices of Manch. Geog. Soc. Nos. 7 & 9, Oct.-Dec. 1896. [The Society.
Naturalists' Chronicle, Vol. 2, No. 24, December 1896. [A. H. Waters, Editor.
Natural Hist. Journal, Vol. 20, No. 180, Dec. 15th, 1896. [The Editors, York.
La Feuille des Jeunes Naturalistes, No. 314, Decembre, 1896. [M. Adrien Dollfuss.
American Mo. Microsc. Journ., No. 203, Nov. 1896. [C. W. Smiley, Washington.
The Museum, Vol. 3, No. 1, November 1896. [Walter F. Webb, Editor.
Entom. Record & Jn. of Variation, Vol. 8, No. 12, December 15th, 1896. [Ed.
The Nautilus, Vol. 10, No. 8, December 1896. [H. A. Pilsbry, etc., Editors.
Natural Science, Vol. 7, No. 58, December 1896. [Page & Pratt, Publishers.
The Irish Naturalist, Vol. 5, No. 12, December 1896. [The Editors, Dublin.
The Zoologist, 3rd Series, Vol. 20, No. 240, Dec. 15, 1896. [J. E. Harting, Editor.
Nature Notes, Vol. 7, No. 84, December 1896. [The Selborne Society.
Naturalists' Journal, Vol. 5. No. 54, December 1896. [S. L. Mosley, Editor.
Psyche: journ. of Entom., Vol. 7, No. 248, Dec. 1896. [Camb. Ent. Cl., U.S.A.
Natur & Haus, Ill. Zeits. f. Natur., Jahrg. 5, Heft 5-6, Nov.-Dec. 1896. [R. Oppenheim.
La Naturaleza, Tomo 7, Num. 33 to 35, Nov. 28, Dec. 8 & 18 1896. [Redactor.
Woolhope Nat. Field Club.—Transactions, 1893-4, publ. 1896. [Woolhope Club.
C. G. Barrett.—The Lepidoptera of the British Islands, Vol. 3, Heterocera, Bombyces, Noctua, 8vo. [L. Reeve & Co., pubs.
W. T. Fernie.—Herbal Simples approved for Modern Uses of Cure, 8vo. 1895. [John Wright & Co., Bristol, pubs.
T. E. Pritt.—An Angler's Basket, 8vo. cloth, 1896. [Abel Heywood & Sons, pubs.
P. F. Kendall.—Erratic Blocks of the British Isles, First Report of the Committee of Brit. Ass., 8vo. reprint, 1896. [Author.
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Contents:

Bibliography: Land and Freshwater Mollusca, 1890 and 1891.—*W. Denison Roebuck, F.L.S.* 33 40
The Chemistry of some Common Plants.—*P. O Keegan, L.L.D.* 41 47
Review: British Butterflies 48
Review: Artistic and Scientific Taxidermy and Modelling.—*H. C.* 49-50
Review: The Study of Wild Flowers.—*F. A. L.* 51-52
Bird-Notes from the Mid-Trent Valley.—*F. B. Whitlock.* 53-57
Review: British Sea Birds 58
The Yorkshire Boulder Committee and its Tenth Year's Work.—*Thomas Tate, F.G.S.* 59-64
Note—Botany 48
An East Riding Sedge: A Correction.—*Charles Waterfall.* 58
Note—Lepidoptera 47, 50, 52
Occurrence of Coremia quadrifasciaria in Mid Lincolnshire.—*Rev. G. H. Kenyon, M.A.*
Notes and News .. ..

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New York Microscopical Soc.—Journal, Vol. 12, No. 4, Oct. 1896. [The Society.
Journal of Malacology, Vol. 5, No. 4, Dec. 30th, 1896. [Mr. W. M. Webb, Editor.
Annals of Scottish Nat. Hist., No. 21, January 1897. [The Editors, Edinburgh.
Museo Nacional de Montevideo.—Anales, pt. 7, 1896. [J. Arechavaleta.
Lincolnshire Notes & Queries, Vol. 5, No. 37, January 1897. [The Editors.
Manchester Geol. Society.—Trans., Vol. 25, Pt. 1, 1896-7. [The Society.
Journ. of Conchology, Vol. 8, No. 10, January 1897. [Conchological Society.
Science Gossip, N. S., Vol. 2, Nos. 1-2, Dec.-Jan. 1896-7. [Jno. T. Carrington, Ed.
Naturalists' Chronicle, Vol. 2, No. 25, January 1897. [A. H. Waters, Editor.
La Feuille des Jeunes Naturalistes, No. 315, Janvier 1897. [M. Adrien Dollfuss.
American Mo. Microsc. Journ., No. 204, Dec. 1896. [C. W. Smiley, Washington.
The Museum, Vol. 3, No. 2, December 1896. [Walter F. Webb, Editor.
Entom. Record & Jn. of Variation, Vol. 9, No. 1, January 15th, 1897. [J. W. Tutt, Ed.
The Nautilus, Vol. 10, No. 9, January 1897. [H. A. Pilsbry, etc., Editors.
Natural Science, Vol. 7, No. 59, January 1897. [Page & Pratt, Publishers.
The Irish Naturalist, Vol. 6, No. 1, January 1897. [The Editors, Dublin.
The Zoologist, 4th Series, Vol. 1, No. 667, Jan. 15, 1897. [West, Newman & Co. Pubs.
Nature Notes, Vol. 7, No. 85, January 1897. [The Selborne Society.
Naturalists' Journal, Vol. 6, No. 55, January 1897. [S. L. Mosley, Editor.
Psyche: journ. of Entom., Vol. 8, No. 249, Jan. 1897. [Camb. Ent. Cl., U.S.A.
Natur & Haus, Ill. Zeits. f. Natur., Jahrg. 5, Heft 7, Dec. 1896. [R. Oppenheim.
La Naturaleza, Tomo 8, Num. 1-2, Enero 8 y 18, 1897. [Redactor.
Plymouth Institution.—Ann. Rep. and Trans, vol. 12, part 2, 1895-6. [The Inst.
J. W. Tutt.—Presidential Address to City of Lond. Ent. Soc., Dec. 1896, 8vo. reprint. [The Author.
F. A. Bather.—A Record of, and Index to Literature of, Echinoderma, for 1895, 8vo. reprint, 1896. [The Author.
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Harry Speight.—Romantic Richmondshire, 8vo. cloth, 1897. [The Author.
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Contents:

The Yorkshire Boulder Committee and its Tenth Year's Work.—*Thomas Tate, F.G.S.* (*concluded*) 65-74
A Probably New Species of Azeca (Azeca elongata) in the British Isles. *John W. Taylor, F.L.S.* 75-76
The Little Owl in Yorkshire.—*James Backhouse, F.Z.S., M.B.O.U.* 76
Carex aquatilis Wahlb. in Lake Lancashire.—*Arthur Bennett, F.L.S.* 77-80
In Memoriam: Thomas Hick, B.A., B.Sc., A.L.S.—*F. Arnold Lees* 81-84
The Constituents of the North Lancashire Flora, 1597(?)-1893.—*Lister Petty* 85-92
Review: Newton's Dictionary of Birds.—*W. C. J. R. Butterfield* 93-94
Bibliography: Ferns, Fern-Allies, and Characea, 1888-1889.—*W. Denison Roebuck, F.L.S.* 95-96
Note—Mollusca 80
Testacella scutulum at Adel.—*H. Crowther, F.R.M.S.*
Notes—Ornithology 80
Sparrow Hawk on Telegraph Wire—*H. Crowther, F.R.M.S.*; Sooty Shearwater at Bridlington—*H. Crowther, F.R.M.S.*; Flamborough Bird-Notes—*Matthew Bailey.*
Notes and News 84, 94

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British Association—Report of 66th Meeting, Liverpool, Sep. 1896. [The Assocn.
National Footpath Preservation Society.—12th Ann. Rep., 1895-6. [The Society.
Australian Museum.—Records, Vol. 3, No. 1, January 1897. [The Trustees.
Naturæ Novitates, 1896, Nos. 20-24, Oct.-Dec. [Friedländer & Sohn, pubs.
Revue Bryologique, 24e Anné, 1897, No. 1, Janvier. [M. T. Husnot, Cahans.
The Halifax Naturalist, Vol. 1, No. 6, February 1897. [The Editor.
Geography; Notices of Manch. Geog. Soc. Nos. 10 & 11, Jan.-Feb. 1897. [The Society.
Natural Hist. Journal, Vol. 21, No. 181, Feb. 15th, 1897. [The Editors, York.
Manchester Geol. Society.—Trans., Vol. 25, Pt. 2, 1896-7. [The Society.
Naturalists' Chronicle, Vol. 2, No. 26, February 1897. [A. H. Waters. Editor.
La Feuille des Jeunes Naturalistes, No. 316, Février 1897. [M. Adrien Dollfuss.
American Mo. Microsc. Journ., No. 205, Jan. 1897. [C. W. Smiley, Washington.
The Museum, Vol. 3, No. 3, January 1897. [Walter F. Webb, Editor.
Entom. Record & Jn. of Variation, Vol. 9, No. 2, February 15th, 1897. [J. W. Tutt, Ed.
The Nautilus, Vol. 10, No. 10, February 1897. [H. A. Pilsbry, etc., Editors.
Natural Science, Vol. 7, No. 60, February 1897. [Page & Pratt, Publishers.
The Irish Naturalist, Vol. 6, No. 2, February 1897. [The Editors, Dublin.
The Zoologist, 4th Series, Vol. 1, No. 668, Feb. 15, 1897. [West, Newman & Co. Pubs.
Nature Notes, Vol. 7, No. 86, February 1897. [The Selborne Society.
Naturalists' Journal, Vol. 6, No. 56, February 1897. [S. L. Mosley, Editor.
Psyche: journ. of Entom., Vol. 8, No. 250, Feb. 1897. [Camb. Ent. Cl., U.S.A.
Natur & Haus, Ill. Zeits. f. Natur., Jahrg. 5, Heft 8-9, Jan. 1897. [R. Oppenheim.
La Naturaleza, Tomo 8, Num. 3-5, Enero 2, Febrero 8 y 18, 1897. [Redactor.
Hobbies.—Vol. 3, Nos. 68-71, Jan. 30th–Feb. 20th, 1897. [The Publishers.
Ornithologisches Jahrbuch.—Jahrg. 8, Heft 1, Jan.-Feb. 1897. [zu Schmidhoffen.
The Practical Photographer.—Vol. 8, No. 86, Feb. 1897. [P. Lund & Co.
British Association.—Toronto Meeting, 1897.—Preliminary Programme. [The Association.
Arthur Bennett.—Notes on Japanese Potamogetones, 8vo, reprint, Août 1896. [Author.
Arthur Bennett.—Juncus tenuis Willd. in Westerness, 8vo, reprint, Jan. 1897. [Author.
Arthur Bennett.—Iceland and Faroe Botany, 8vo, reprint, Aug. 1896. [Author.
A. Somerville.—Additions to the Known Flora of the South Ebudes, v.-c. 102, 8vo, reprint, Oct. 1896. [Mr. A. Bennett.
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Now NANSEN is with us, it is interesting to read Mr. Montefiore Brice's defence of the Map of Franz Josef Land, and the unsparing treatment meted out to him by the Editors. The Editors also attack the way in which many authors think it good enough to read papers at Society meetings. Dr. A. R. Wallace writes on 'Instinct'; Mr. H. M. Bernard on 'The Light-Sensations of Eyeless Animals'; Messrs. Perry Coste and S. S. Buckman on 'Human Evolution'; while Prof. Fritsch supports the plea of *Natural Science* for a Freshwater Biological Station in Britain. There is an important review of the 'Cambridge Natural History, vol. ii. (Worms, &c.),' and of 19 other books and pamphlets. Mr. John Cordeaux writes on 'Heinrich Gätke.'

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Contents:

Bibliography: Ferns, Fern-Allies, and Characea, 1888-1889.—*W. Denison Roebuck, F.L.S.* 97-100
Review: Masefield on Protection of Birds 101-102
Lincolnshire Boulders.—*John H. Cooke, F.G.S.* 103-105
The Land-Planarian, Rhynchodemus terrestris (Müll.), in Lincolnshire.—*H. Wallis Kew, F.Z.S.* 106
Review: First Records of British Flowering Plants.—*F. Arnold Lees* 107-109
The Roseate Tern still a British Breeding Bird.—*E. G. Potter* 110
In Memoriam: Alexander Henry Green.—*A. H.* 111-114
Preliminary List of the Neuroptera and Trichoptera of Yorkshire.—*G. T. Porritt, F.L.S., F.E.S.* 115-126
New Plant-Records for Lake Lancashire.—*John Henry* 127
Jubula Hutchinsiæ: A Rare Hepatic, new to Yorkshire.—*Matthew B. Slater, F.L.S.* 128
Notes—Ornithology 114, 126
Red-backed Shrike at Spurn—*E. G. Potter*: Large Clutch of Eggs of the Sparrow Hawk *E. G. Potter*; Sclavonian Grebes at Easington in Holderness—*Philip H. Loten.* 102
Note—Mosses 105
Phascum Floerkii: an Addition to the Moss Flora of the East Riding—*T. F. Marshall.*
Note—Geology 126, 127
Travelled Snap Granite on Walney Island—*S. E. Peltt.*
Notes—Botany 106, 109, 127
Cephalanthera ensifolia Rich. in Yorkshire: An Early Record—*W. West, jun., B.A.*; Comical Criticism—*F. A. Lees*; West Lancashire Plants—*F. A. Lees.*
Notes and News 128

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Belfast Nat. Field Club.—Ann. Rep. and Proc., for 1893-4, 1894-5, 1895-6. [The Club.

Yorkshire Philosophical Soc.—Annual Reports, 1894, 1895. [The Society.

Lancashire and Cheshire Ent. Soc., 19th and 20th Ann. Rep., 1894-95 and 1896. [The Society.

Bristol Nat. Soc.—Proc., N.S., Vol. 8, Part 1 (1895-6). [Society.

Mineralogical Magazine, Vol. 10, No. 49, April 1895. [Mineralogical Society.

Botanical Soc. of Edinburgh. Trans. 1894-6, Vol. 20, Pts. 2-3. [The Society.

Birmingham Nat. Hist. and Phil. Soc. Journal, Vol. 1, Nos. 8-13, Jan.-Dec. 1895; Vol. 2, Nos. 1-6, Jan.-Dec. 1896. [The Society.

North Lonsdale Magazine, Vol. 2, No. 5, February 1897. [Mr. Lister Petty.

Yn Lioar Manninagh, Vol. 3, Part 4, received 14th March 1897. [I. of Man N.H.S.

Annaes de Sciencias Naturaes—Ann. 4, No. 1, Janeiro de 1897. [Augusto Nobre.

The Essex Naturalist, Vol. 9, Nos. 7-14. July '95-Feb. '96. [The Essex Field Club.

New York Microscopical Soc.—Journal, Vol. 13, No. 1, Jan. 1897. [The Society.

Science Gossip, N. S., Vol. 2, Nos. 33-4, Feb.-Mch. 1897. [Jno. T. Carrington, Ed.

Geography; Notices of Manch. Geog. Soc.—No. 12, March 1897. [The Society.

Natural Hist. Journal, Vol. 21, No. 182, March 15th, 1897. [The Editors, York.

Manchester Geol. Society.—Trans., Vol. 25, Pt. 3, 1896-7. [The Society.

Naturalists' Chronicle, Vol. 2, No. 27, March 1897. [A. H. Waters, Editor.

La Feuille des Jeunes Naturalistes, No. 317, Mars 1897. [M. Adrien Dollfuss.

American Mo. Microsc. Journ., No. 206, Feb. 1897. [C. W. Smiley, Washington.

The Museum, Vol. 3, No. 4, February 1897. [Walter F. Webb, Editor.

Entom. Record & Jn. of Variation, Vol. 9, No. 3, March 15th, 1897. [J. W. Tutt, Ed.

The Nautilus, Vol. 10, No. 11, March 1897. [H. A. Pilsbry, etc., Editors.

Natural Science, Vol. 7, No. 61, March 1897. [Page & Pratt, Publishers.

The Irish Naturalist, Vol. 6, No. 3, March 1897. [The Editors, Dublin.

The Zoologist, 4th Series, Vol. 1, No. 669, Mar. 15, 1897. [West, Newman & Co. Pubs.

Nature Notes, Vol. 7, No. 87, March 1897. [The Selborne Society.

Naturalists' Journal, Vol. 6. No. 57, March 1897. [S. L. Mosley, Editor.

Psyche: journ. of Entom., Vol. 8. No. 251, Mar. 1897. [Camb. Ent. Cl., U.S.A.

Natur & Haus, Ill. Zeits. f. Natur., Jahrg. 5, Heft 10-11, Feb. 1897. [R. Oppenheim.

La Naturaleza, Tomo 8, Num. 6, Febrero 28, 1897. [Redactor.

Hobbies.—Vol. 3, Nos. 71-72, February 20, 27, 1897. [The Publishers.

Knowledge.—Vol. 20, Nos. 135-7, January to March 1897. [The Editor.

Society for Protection of Birds.—6th Annual Report, for 1896. [The Society.

Liverpool Marine Biol. Committee.—10th Ann. Rep., for 1896. [The Committee.

Lancashire Sea-Fisheries Laboratory.—Report for 1896. [Prof. Herdman.

Természetrajzi Füzetek.—Vol. 20, 1897, partes 1-2, Feb. 1st, 1897. [Hung. Nat. Museum.

Birmingham N. H. & Phil. Soc.—List of Members, March 1896, and Ann. Rep. for 1895. [The Society.

Manch. Lit. and Phil. Society.—Complete List of Officers and Members, Feb. 28th, 1781, to April 28th, 1896. [The Society.

M. C. F. Morris.—Francis Orpen Morris, a Memoir, 8vo, cloth, 1897. [John C. Nimmo, publs.

Sir J. W. Dawson.—Relics of Primeval Life, 8vo, cloth, 1897. [Hodder & Stoughton, publs.

W. Cuthbertson and others.—The Dahlia, its History and Cultivation. Crown 8vo, 1897, paper. [Macmillan & Co., publs.

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Contents:

Owls and their Longevity.—*Oxley Grabham, M.A., M.B.O.U.* 129-132

In Memoriam: Henry Boswell.—*F. A. Lees, M.R.C.S.* 132

A Critical Catalogue of Lincolnshire Plants.—*Rev. E. Adrian Woolrufe-Peacock, L.Th., F.L.S., F.G.S.* (Twelfth paper). 133-140

Review: Recent Works on Land and Freshwater Shells.—*C. Oldham* .. 141-143

Review: The Red Deer in Britain 144

Vicia Lutea and other Rare Plants near Workington, Cumberland. *William Hodgson, A.L.S.* 145-147

Review: Insect-foes of Fruit-trees 147

Review: British Cicadina and Psyllina 148

President's Address to the Lincolnshire Naturalists' Union.—*Rev. Canon W. W. Fowler, M.A., F.L.S., F.E.S.* 149-156

On the Collection of Freshwater Algæ.—*W. West, F.L.S., and G. S. West, A.R.C.S.* 157-158

Bibliography: Hymenoptera, 1890 to 1892.—*Wm. Denison Roebuck, F.L.S.* .. 159-160

Notes—Ornithology 143, 158

Sanderling in Yorkshire in June—*E. G. Potter*: Flamborough Bird Notes.—Spring and Summer Visitants—*Matthew Bailey*.

Note—Coleoptera 144

Carabus arvensis near Bradford—*J. W. Carter*.

Note—Reptiles 148

Blue-bellied Viper at Skipwith Common—*Henry Crowther, F.R.M.S.*

Notes and News 156

Communications to be addressed
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Smithsonian Institution Ann. Rep. to July 1894, 8vo cloth, 1896. [The Institution.
Liverpool Biological Society—Proceedings, Vol. 10, 1895-6. [The Society.
Index to Vol. 10 of the Nautilus, May 1896 to April 1897. [The Publisher.
Northamptonshire Nat. Hist. Soc.—Journal, Nos. 65-68, for 1896. [Society.
Philadelphia Acad. of Nat. Sci.—Proc., 1896, Part 2, April-August. [Academy.
Die Schwalbe, Jahrgang 20, Nr. 3, Juli-September, 1896. [Orn. Vereins in Wien.
Manch. Microsc. Soc.—Trans. and Ann. Rep., 1888, 1890, 1891. [The Society.
Nuova Notarisia, Serie VIII., Aprile 1897. [Dr. G. B. de Toni, Padova, Italia.
Journ. of Manch. Geog. Soc., Vol. 12, Nos. 1-3, Jan.-Mch. [Society.
Annals of Scottish Nat. Hist., No. 22, April 1897. [The Editors, Edinburgh.
Lincolnshire Notes & Queries, Vol. 5, No. 38, April 1897. [The Editors.
Journ. of Conchology, Vol. 8, No. 11, April 1897. [Conchological Society.
Naturæ Novitates, 1897, Nos. 1-3, Jan.-Feb. [Friedländer & Sohn, pubs.
The Halifax Naturalist, Vol. 2, No. 7, April 1897. [The Editor.
Mineralogical Magazine, Vol. 10, No. 50, Sept. 1895. [Mineralogical Society.
Birmingham Nat. Hist. and Phil. Soc. Journal, Vol. 2, No. 7, Jan.-Feb, 1897. [The Society.
North Lonsdale Magazine, Vol. 2, No. 6, April 1897. [Mr. Lister Petty.
The Essex Naturalist, Vol. 9, Nos. 15-24, March-Dec. '96. [The Essex Field Club.
Science Gossip, N. S., Vol. 2, No. 5, April 1897. [Jno. T. Carrington, Ed.
Geography; Notices of Manch. Geog. Soc.—No. 13, April 1897. [The Society.
Natural Hist. Journal, Vol. 21, No. 183, April 15th, 1897. [The Editors, York.
Naturalists' Chronicle, Vol. 2, No. 28, April 15th, 1897. [A. H. Waters. Editor.
La Feuille des Jeunes Naturalistes, No. 318, Avril 1897. [M. Adrien Dollfuss.
American Mo. Microsc. Journ., No. 206, Feb. 1897. [C. W. Smiley, Washington.
Entom. Record & Jn. of Variation, Vol. 9, No. 4, April 15th, 1897. [J. W. Tutt, Ed.
The Nautilus, Vol. 10, No. 12, April 1897. [H. A. Pilsbry, etc., Editor.
Natural Science, Vol. 7, No. 62, April 1897. [Page & Pratt, Publishers.
The Irish Naturalist, Vol. 6, No. 4, April 1897. [The Editors, Dublin.
The Zoologist, 4th Series, Vol. 1, No. 670, Apl. 15, 1897. [West, Newman & Co. Pubs.
Nature Notes, Vol. 7, No. 88, April 1897. [The Selborne Society.
Naturalists' Journal, Vol. 6, No. 58, April 1897. [S. L. Mosley, Editor.
Psyche: journ. of Entom., Vol. 8, No. 252, April 1897. [Camb. Ent. Cl., U.S.A.
Natur & Haus, Ill. Zeits. f. Natur., Jahrg. 5, Heft 12-13, Mar. 1897. [R. Oppenheim.
La Naturaleza, Tomo 8, Num. 7, 8, 9, Marzo 8, 18, y28, 1897. [Redactor.
Hobbies.—Vol. 3, Nos. 73-76, March 6, 13, 20, 27, 1897. [The Publishers.
Knowledge.—Vol. 20, No. 138, April 1897. [The Editor.
American Monthly Microscopical Journal, No. 207, March 1897. [C. W. Smiley.
Natural Science Journal, No. 1, March 1897. [Atl. Sci. Bureau.
W. W. Watts.—British Geological Photographs. Reprint, 8vo, 1897. [Author.
Albert Wood.—List of L. & F. W. Shells found at Sutton Coldfield. 8vo, 1897. [Author.
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Contents:

Bibliography: Hymenoptera, 1890 to 1892.—*Wm. Denison Roebuck, F.L.S.* .. 161-166

A Critical Catalogue of Lincolnshire Plants.—*Rev. E. Adrian Woodruffe-Peacock, L.Th., F.L.S., F.G.S.* (Thirteenth paper). 167-172

Henry Boswell: West Yorkshire Mosses.—*William Whitwell, F.L.S.* 173-176

The Harvest Mouse in Yorkshire.—*Orley Grabham, M.A., M.B.O.U.* 177-178

Some New Records for the Moss-Flora of Nidderdale and Wensleydale: with Additional Localities for North Yorkshire and South Durham.—*R. Barnes* 179-188

Some Nidderdale Mosses.—*Llewellyn J. Cocks* 189-190

Review: An Angler's Basket 191

Review: Barrett's British Lepidoptera 192

Note—Botany 172
A New Lincolnshire Plant.—*F. Arnold Lees, L.R.C.P.*

Note—Hymenoptera 176
Sirex juvencus and other Hymenoptera in Lincolnshire.—*Rev. A. Thornley, M.A., F.L.S., F.E.S.*

Note—Diptera 178
Chironomus sylvestris at Lincoln.—*Jas. Eardley Mason.*

Note—Fungi 178
Lincolnshire Fungi.—*Rev. W. Fowler, M.A.*

Note—Mosses 178
Hypnum giganteum at Skipwith: A New Record for the East Riding.—*Wm. Ingham, B.A.*

Notes—Ornithology 188, 190, 192
Unusual Nidification of Missel Thrush (*Turdus viscivorus*).—*Jas. Eardley Mason*; Sanderling in June.—*G. H. Caton Haigh, M.B.O.U.*; Flamborough Bird Notes: Arrival of Summer Visitants.—*Matthew Bailey*; Grasshopper Warbler in Holderness.—*T. Petch, B.A.*; The Long-eared or Horned Owl in Lincoln N.—*Jas. Eardley Mason*; Lakeland Bird Notes.—*Miss Mary L. Armitt.*

Notes and News 172, 191

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Bericht üb. d. Verlagsthätigk. v. Friedländer & Sohn, No. 36, Juli-Dec., '96. [Pubs.
Nova Scotia Institute.—Proceedings, vol. 9, part 2, 1895-96. [Institution.
Journal of Malacology, Vol. 6, No. 1, May 3rd, 1897. [Mr. W. M. Webb, Editor.
Revue Bryologique, 24e Anné, 1897, No. 2, Mars. [M. T. Husnot, Cahan.
New York Microscopical Soc.—Journal, Vol. 13, No. 2, April 1897. [The Society.
Manchester Geol. Society.—Trans., Vol. 25, Pt. 4-5, 6, 1896-7. [The Society.
Norfolk and Norwich Naturalists' Soc. Trans., Vol. 6, Pt. 2, 1895-6. [The Soc.
Philadelphia Acad. of Nat. Sci.—Proc., 1896, Part 3, Sept.-Nov. [Academy.
Die Schwalbe, Jahrgang 20, Nr. 4, Oct.-Dec., 1896. [Orn. Vereins in Wien.
Journ. of Manch. Geog. Soc., Vol. 12, Nos. 4-6, April-June. [Society.
Naturæ Novitates, 1897, Nos. 5-8. [Friedländer & Sohn, Pubs.
Mineralogical Magazine, Vol. 11, No. 51, October 1896. [Mineralogical Society.
Geography; Notices of Manch. Geog. Soc.—No. 14, May 1897. [The Society.
Natural Hist. Journal, Vol. 21, No. 184, May 15th, 1897. [The Editors, York.
Naturalists' Chronicle, Vol. 2, No. 29, May 15th, 1897. [A. H. Waters, Editor.
La Feuille des Jeunes Naturalistes, No. 319, May 1897. [M. Adrien Dollfuss.
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Natural Science, Vol. 7, No. 63, May 1897. [Page & Pratt, Publishers.
The Irish Naturalist, Vol. 6, No. 5, May 1897. [The Editors, Dublin.
The Zoologist, 4th Series, Vol. 1, No. 671, May 15, 1897. [West, Newman & Co. Pubs.
Nature Notes, Vol. 7, No. 89, May 1897. [The Selborne Society.
Naturalists' Journal, Vol. 6, No. 59, May 1897. [S. L. Mosley, Editor.
Psyche: journ. of Entom., Vol. 8, No. 253, May 1897. [Camb. Ent. Cl., U.S.A.
Natur & Haus, Ill. Zeits. f. Natur., Jahrg. 5, Heft 4, April 1897. [R. Oppenheim.
La Naturaleza, Tomo 8, Num. 10 y 11, Abril 8 y 18, 1897. [Redactor.
Hobbies.—Vol. 3, Nos. 77-80, April 3, 10, 17, 24, 1897. [The Publishers.
Knowledge.—Vol. 20, No. 139, May 1897. [The Editor.
American Monthly Microscopical Journal, No. 208, April 1897. [C. W. Smiley.
Liverpool Nat. F. Club.—Proceedings for the year 1896. [The Club.
Lord Walsingham and Mr. J. H. Durrant.—Rules for Regulating Nomenclature, 8vo, paper covers, 2nd Nov., 1896. [The Authors.
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John Clayton.—Effects of the Weather upon Vegetation—a Lecture—8vo, 1897, paper covers. [The Author.
Mineralogical Magazines.—Index of Authors and Subjects, Vol. 1—10, 8vo, 1895. [The Society.
National Footpath Preservation Society.—Occasional Paper, No. 65, May 1897. [The Society.
F. A. Fulcher.—Birds of our Islands, 8vo, cloth, N.D. [Andrew Melrose, Pub.
The Concise Knowledge Natural History, by 9 Authors, 8vo, cloth, 1897. [Hutchinson & Co., Publishers.

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Contents:

President's Address to the Yorkshire Naturalists' Union.—*John Cordeaux. F.R.G.S., M.B.O.U.* 193-208

Natural History Notes; What to Note and How to Make Notes.—*Gregory O. Benoni* 209-212

On the Hepaticæ and Musci of Westmorland.—*George Stabler.* (Fifth Paper.) 213-220

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Nat. Hist. Soc. Glasgow.—Transactions, Vol. 4, pt. 2, 1894-5. [The Society.
Ornithologisches Jahrbuch.—Jahrg. 8, Heft 1, Jan.-Feb. 1897. [zu Schmidhoffen.
Manch. Lit. & Phil. Soc.—Mem. & Proc., vol. 41, Part 3, 1896-97. [Society.
Yorkshire Philosophical Soc.—Annual Report for year 1896. [The Society.
Annaes de Sciencias Naturaes—Ann. 4, No. 2, Abril de 1897. [Augusto Nobre.
Természetrajzi Füzetek.—Vol. 20, 1897, p. 3, June 6th, 1897. [Hung. Nat. Museum.
The Halifax Naturalist, Vol. 2, No. 8, June 1897. [The Editor.
Revue Bryologique, 24e Anné, 1897, No. 3, Mai 24th [M. T. Husnot, Cahan.
Mineralogical Magazine, Vol. 11, No. 52, May 1897. [Mineralogical Society.
Geography; Notices of Manch. Geog. Soc.—No. 15, June 1897. [The Society.
Natural Hist. Journal, Vol. 21, No. 185, June 15th, 1897. [The Editors, York.
Naturalists' Chronicle, Vol. 2, No. 30, June 15th, 1897. [A. H. Waters, Editor.
La Feuille des Jeunes Naturalistes, No. 320, May 1897. [M. Adrien Dollfuss.
Entom. Record & Jn. of Variation, Vol. 9, No. 6, June 15th, 1897. [J. W. Tutt, Ed.
Natural Science, Vol. 7, No. 64, June 1897. [Page & Pratt, Publishers.
The Irish Naturalist, Vol. 6, No. 6, June 1897. [The Editors, Dublin.
The Zoologist, 4th Series, Vol. 1, No. 672, June 15, 1897. [West, Newman & Co. Pubs.
Nature Notes, Vol. 7, No. 90, June 1897. [The Selborne Society.
Naturalists' Journal, Vol. 6, No. 60, June 1897. [S. L. Mosley, Editor.
Psyche: journ. of Entom., Vol. 8, No. 254, June 1897. [Camb. Ent. Cl., U.S.A.
Natur & Haus, Ill. Zeits. f. Natur., Jahrg. 5, Heft 15, 16, 17, 18, May 1897. [R. Oppenheim.
La Naturaleza, Tomo 8, Num. 13, 14, 15, Mayo 8, 18, 28, 1897. [Redactor.
Hobbies.—Vol. 3, Nos. 81-85, May 1, 8, 15, 22, 29, 1897. [The Publishers.
Knowledge.—Vol. 20, No. 140, June 1897. [The Editor.
American Monthly Microscopical Journal, No. 209, May 1897. [C. W. Smiley.
The Wombat, Vol. 2, No. 2, Feb. 1897. [Gordon Technical College, Geelong.
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Contents:

The Birds of Lonan, Isle of Man.—*P. Ralfe.* 225-226
Review—Sir J. William Dawson on Relics of Primeval Life 227-228
The Constituents of the North Lancashire Flora, 1559(?)-1893.—*Lister Petty* (Twelfth Paper). 229-236
Bird-Notes from the Humber District.—*John Cordeaux, F.R.G.S., M.B.O.U.* .. 237-240
Review of W. J. Gordon on Coloured Figures of British Lepidoptera .. 240
The Food of the Merlin.—*Oxley Grabham, M.A., M.B.O.U.* 241-242
Walls and Wall-Nesters.—*Miss M. L. Armitt* 243-252
Lincolnshire Naturalists in the Gainsborough Neighbourhood.—*Rev. E. A. Woodruffe-Peacock, L.Th., F.L.S., F.G.S.* 253-256
Notes—Botany 226
New Alien Records for Lincolnshire.—*Rev. E. A. Woodruffe-Peacock, F.L.S., etc.*: Lathyrus nissolia near Doncaster.—*H. H. Corbett, F.E.S.*: A Rare Lincolnshire Alien—*Rev. E. A. Woodruffe-Peacock F.L.S., etc.*; Confirmation of an Old Lincolnshire Record.—*Rev. E. Adrian Woodruffe-Peacock, F.L.S., etc.*
Note—Geology 228
Lincolnshire Erratics—*Thomas Sheppard.*
Note—Mosses 242
Timmia norvegica in Upper Teesdale: a New Record for Yorkshire and for England.—*W. Ingham, B.A.*
Note—Lepidoptera 242
Eupœcilia vectisana at Askern; an interesting Addition to the Yorkshire Lepidoptera.—*H. H. Corbett, F.E.S.*
Note—Mammalia 242
Whiskered Bat on the Cheshire and Staffordshire Border. *Chas. Oldham.*
Notes and News 252, 256

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Warrington Literary and Philosophical Society. Proc., 1896-7. [The Society.
Il Naturalista Siciliano—Anno 2, N. 1-2-3, 1 Maggio 1897. [Il Redattore.
Museo Nacional de Montevideo.—Anales, pt. 6, 1897. [J. Arechavaleta.
Manch. Microsc. Soc.—Trans. and Ann. Report for 1896. [The Society.
Nuova Notarisia, Serie VIII., Luglio 1897. [Dr. G. B. de Toni, Padova, Italia.
Annals of Scottish Nat. Hist., No. 23, July 1897. [The Editors, Edinburgh.
Lincolnshire Notes & Queries, Vol. 5, No. 39. July 1897. [The Editors.
Journ. of Conchology, Vol. 8, No. 12, July 1897. [Conchological Society.
The Nautilus, Vol. 11, Nos. 1, 2, 3, May, June and July 1897. [H. A. Pilsbry, etc., Editor.
New York Microscopical Soc.--Journal, Vol. 13, No. 3, July 1897. [The Society.
Manchester Geol. Society.—Trans., Vol. 25, Pt. 7, 1896-7. [The Society.
Philadelphia Acad. of Nat. Sci.—Proc., 1897, Part 1, Jan.-March [Academy.
Journ. of Manch. Geog. Soc., Vol. 12, Nos. 7-9, July-Sep. 1896. [Society.
Nat. Hist. Soc. Glasgow.—Transactions, Vol. 4, pt. 3, 1895-6. [The Society.
Naturalists' Chronicle, Vol. 2, No. 31, July 1897. [A. H. Waters. Editor.
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Entom. Record & Jn. of Variation, Vol. 9, No. 7, July 1st, 1897. [J. W. Tutt, Ed.
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Knowledge.—Vol. 20, No. 141, July 1897. [The Editor.
American Monthly Microscopical Journal, No. 210, June 1897. [C. W. Smiley.
Peterborough N. H. etc. Soc.—Precis of 25th Ann. Rep., 31st Dec., 1896. [Society.
Annotationes Zoologicæ Japonenses, Vol. 1, Partes 1 et 2, 25th May, 1897. [Zool. Soc. of Tokyo.
U.S. Dept. of Agric.—Farmers' Bulletin, No. 54 (F. E. L. Beal on 'Some Common Birds in their Relation to Agriculture'), May 1897. [The Dept.
R. Standen [and others].—Some Observations by English Naturalists on the Fauna of Rathlin Island and Ballycastle District, 8vo, reprint. [Authors.
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Contents:

White Worms as Plant Pests.—*Rev. Hilderic Friend.* 257-260
On the Hepaticæ and Musci of Westmorland.—*George Stabler.* 261-268
Review: Credulity, Culinary and Curative. 269-271
Review: The Study of Rock-Sections. 272
Eggs of Stone-Curlew.—*Oxley Grabham, M.A., M.B.O.U.* 273-274
Polyzoa and Hydrozoa at Filey.—*S. L. Petty.* 275-276
Notes on the Glacial Deposits of Cleethorpes and District.—*John H. Cooke, F.G.S.* 277-281
Lincolnshire Boulders.—*John H. Cooke, F.G.S.* (Second Paper.) 283-284
Bibliography: Phanerogamic Botany, 1891.—*Wm. Denison Roebuck, F.L.S.* .. 285-288
Note—Botany 271
New Lincolnshire Plant Records.—*Rev. E. A. Woodruffe-Peacock, F.L.S., etc.*
Notes and News. 260, 271, 274, 282

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Manchester Museum—Report for 1896-1897, with appendices. [The Committee.

The Museum, Vol. 3, Nos. 5-9, March-July 1897. [Walter F. Webb, Editor.

Science Gossip, N. S., Vol. 2, Nos. 36-39, May-Aug. 1897. [Jno. T. Carrington, Ed.

Naturæ Novitates, 1897, Nos. 9-12, Mai-Juni. [Friedländer & Sohn, Pubs.

Ornithologisches Jahrbuch.—Jahrg. 8, Heft 2-3, März-Juni 1897. [zu Schmidhoffen.

The Halifax Naturalist, Vol. 2, No. 9, August 1897. [The Editor.

Revue Bryologique, 24e Anné, 1897, No. 4, August 3rd. [M. T. Husnot, Cahan.

Naturalists' Journal, Vol. 6, No. 61-2, July-August 1897. [S. L. Mosley, Editor.

The Nautilus, Vol. 11, No. 4, August 1897. [H. A. Pilsbry, etc., Editor.

Naturalists' Chronicle, Vol. 2, No. 32, August 15th, 1897. [A. H. Waters, Editor.

La Feuille des Jeunes Naturalistes, No. 322, Août 1897. [M. Adrien Dollfuss.

Entom. Record & Jn. of Variation, Vol. 9, No. 8, August 1st, 1897. [J. W. Tutt, Ed.

Natural Science, Vol. 7, No. 66, August 1897. [J. M. Dent & Co., Publishers.

The Irish Naturalist, Vol. 6, No. 8, August 1897. [The Editors, Dublin.

The Zoologist, 4th Series, Vol. 1, No. 674, Aug. 16, 1897. [West, Newman & Co. Pubs.

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Natur & Haus, Ill. Zeits. f. Natur., Jahrg. 5, Heft 20-21, Juli 1897. [R. Oppenheim.

La Naturaleza, Tomo 8, Num. 19, 20, 21, Julio 8, 18, 28, 1897. [Redactor.

Hobbies.—Vol. 3, Nos. 90-94, July 3, 10, 17, 24, 31, 1897. [The Publishers.

American Monthly Microscopical Journal, No. 211, July 1897. [C. W. Smiley.

Edward A. Martin.—Bibliography of Gilbert White, 8vo, cloth, N.D. [1897]. [Roxburghe Press, Publishers.

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The Isle of Man Official Guide, etc., 1897. [Board of Advertising, I. of M.

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Contents:

Bibliography: Phanerogamic Botany, 1891.—*Wm. Denison Roebuck, F.L.S.* .. 289-297

The Late Lord Bishop of Wakefield.—*William Whitwell, F.L.S.* 299-308

The Constituents of the North Lancashire Flora, 1597(?)-1893.—*Lister Petty* 309-316

The Lincolnshire Naturalists' Union at Holbeck, Somersby, and Tetford.—*Rev. E. Adrian Woodruffe-Peacock, L.Th., F.L.S., F.G.S.* 317-320

Notes—Ornithology 298, 308

Note on the Eggs of the Stone Curlew—*N. F. Debenham*; Common Swift Roosting in Tree—*W. Gyngell*; The Eggs of the Roseate Tern—*E. G. Potter*; Greenshank in the Peak—*Chas. Oldham*; Caspian Tern on the Trent—*F. B. Whitlock*; Storm-Petrel and Red-necked Grebe in the Peak—*Chas. Oldham.*

Notes—Lepidoptera.. 308

Sphinx convolvuli and Crambus pinetellus at Windermere—*Rev. G. Crewdson, M.A.*; Vanessa antiopa near Scarborough—*James H. Rowntree.*

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National Footpath Preservation Soc.—Occ. Paper, No. 66, Sep. 1897. [The Society.
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Natural Hist. Journal, Vol. 21, No. 186, Sep. 15th, 1897. [The Editors, York.
Il Naturalista Siciliano—Anno 2, N. 4, 30 Giugno 1897. [Il Redattore.
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Agricultural College of New Mexico. Experimental Station Bulletin. No. 22, March 1897. Alkali in the Rio Grande and Animas Valleys, by A. Goss and H. H. Griffin. [The College.
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The Zoologist, 4th Series, Vol. 1, No. 675, Sep. 15, 1897. [West, Newman & Co. Pubs.
Nature Notes, Vol. 7, No. 93, September 1897. [The Selborne Society.
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American Monthly Microscopical Journal, No. 212, August 1897. [C. W. Smiley.
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C. H. Waddell.—Moss Exchange Club Catalogue of British Hepaticæ, 8vo, 1897. [Author.
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Contents:

The Lincolnshire Naturalists' Union at Holbeck, Somersby, and Tetford.—*Rev. E. Adrian Woodruffe-Peacock, L.Th., F.L.S., F.G.S.* 321-324
The Constituents of the North Lancashire Flora, 1597(?)–1893 (14th Paper).—*Lister Petty* 325-332
The Tints and Shades in Autumn Woods.—*P. Q. Keegan, LL.D.* 337, 338
North Lancashire Plants.—*John Henry* 339, 340
Fungus Foray at Barnsley: with List of Species found—*Charles Crossland* .. 341 348
Neuroptera-Planipennia and Trichoptera observed near Tadcaster.—*Francis G. Binnie* 349-351
Review: British Yew-Trees 333-335
Review: Gilbert White 335, 336
Note—Mammalia. 324
Animal Place-Names—*Hugh Boyd Watt.*
Note—Geology 338
Glacial Boulders at West End, Morecambe.—*Harry Speight.*
Note—Hepaticæ 351
A Second West Riding Locality for Jubula hutchinsiæ.—*L. J. Cocks.*
Notes—Coleoptera 352
Acanthocinus ædilis at Doncaster.—*A. Paterson*: Recent Occurrence of Rhizotrogus solstitialis in Yorkshire.—*M. Lawson Thompson.*
Notes—Ornithology 352
Pectoral Sandpiper near Spurn.—*John Cordeaux, M.B.O.U., etc.*: Kestrel and Long-eared Owl breeding in close proximity to each other.—*E. G. Potter.*
Note—Fungi 352
The British Mycological Society at Sherwood Forest.
Notes and News 336

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Australian Museum.—Records, Vol. 3, No. 2, August 5th. 1897. [The Trustees.
The Essex Naturalist, Vol. 10, Nos. 1-4, Jan.-March '97. [The Essex Field Club.
Bericht üb. d. Verlagsthätigk. v. Friedländer & Sohn, No. 37, Jan.-Jun.' 97. [Pubs.
Norfolk and Norwich Naturalists' Soc.—Trans., Vol. 6, Pt. 3, 1896-7. [The Soc.
Geography; Notices of Manch. Geog. Soc.—No. 16. Oct. 1st, 1897. [The Society.
Annals of Scottish Nat. Hist., No. 24, October 1897. [The Editors, Edinburgh.
Lincolnshire Notes & Queries, Vol. 5, No. 40, October 1897. [The Editors.
Journ. of Conchology, Vol. 8, No. 13, October 1897. [Conchological Society.
Annotationes Zoologicæ Japonenses, Vol. 1, Pars 3, 10 Aug. 1897. [Zool. Soc. Tokyo.
The Halifax Naturalist, Vol. 2, No. 10, October 1897. [The Editor.
Australian Museum.—Report of Trustees for year 1896. [The Trustees.
Manchester Geol. Society.—Trans., Vol. 25, Pt. 9, 1896-7. [The Society.
The Museum, Vol. 3, No. 11, September 1897. [Walter F. Webb, Editor.
Naturæ Novitates, 1897, Nos. 13-17, Juli-September. [Friedländer & Sohn, Pubs.
Ornithologisches Jahrbuch.—Jahrg. 8, Heft 5, Sept.-Oct. 1897. [zu Schmidhoffen.
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Nature Notes, Vol. 7, No. 94, October 1897. [The Selborne Society.
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Natur & Haus, Ill. Zeits. f. Natur., Jahrg. 5, Heft 24, Sept. 1897. [R. Oppenheim.
La Naturaleza, Tomo 8, Num. 25, 26, 27, Septiembre 8, 18, 28, 1897. [Redactor.
Hobbies.—Vol. 4, Nos. 99-102, September 4, 11, 18, 25, 1897. [The Publishers.
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Year-book of the U.S. Department of Agriculture, for 1896-97. [The Department.
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Contents:

Lathyrus nissolia and other Rare Plants at Sandal, near Doncaster.—*H. H. Corbett, M.R.C.S.* .. 353-354

Lincolnshire Naturalists at Frampton and Wyberton Fitties.—*Rev. E. Adrian Woodruffe-Peacock, L.Th., F.L.S., F.G.S.* .. 355-360

List of Lepidoptera taken at Wyberton, near Boston,—*J. C. Lane-Claypon* .. 361-366

In Memoriam: Thomas Tate, F.G.S.—*C. D. Hardcastle* .. 367-370

Notes—Mammalia .. 354
Squirrel in Upper Wharfedale—*Rev. W. A. Shuffrey, M.A.*; Great Increase of Arvicola agrestis at York—*J. Backhouse, F.Z.S., M.B.O.U.*

Note—Arachnida .. 354
Epeira cucurbitina in Northumberland—*Wm. Falconer.*

Note—Coleoptera .. 370
Rhizotrogus solstitialis at Hackness—*Rowland J. Fryer.*

Notes—Ornithology .. 370, 372
Waxwing in Nidderdale—*W. Clarkson Clarkson*; The Kingfisher in North Lancashire—*S. L. Petty.*

Note—Palæobotany .. 370
Note on the Occurrence of Palæoxyris Brongniart in Yorkshire—*R. Kidston, F.R.S.E., F.G.S.*

Notes—Geology .. 371
Glacial Boulders at Morecambe—*H. Speight*; Boulders on the Lancashire Coast—*Rev. A. W. Rowe, M.A.*; Boulders of Shap Granite in Morecambe Bay—*T. Sheppard*; Erratic Boulders in Lincolnshire—*F. M. Burton, F.L.S., F.G.S.*

Notes and News .. 360, 372

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Knowledge.—Vol. 20, Nos. 142-5, August to November 1897. [The Editor.
National Footpath Preservation Soc.—Occ. Paper, No. 67, Nov. 1897. [The Society.
Natural Hist. Journal, Vol. 21, No. 187, Oct. 15th, 1897. [The Editors, York.
Revue Bryologique, 24e Anné, 1897, No. 6, Nov. 24th. [M. T. Husnot, Cahan.
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